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WE EUROPEANS

A SURVEY OF "RACIAL" PROBLEMS

BY

JULIAN S. HUXLEY, D.Sc

Secretary of the Zoological Society of London

AND

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Formerly Reader in Ethnology in the University of Cambridge

With a Chapter on

EUROPE OVERSEAS

BY

A. M. CARR-SAUNDERS, M.A.

Charles Booth Professor of Social Science in the University of Liverpool

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PREFACE

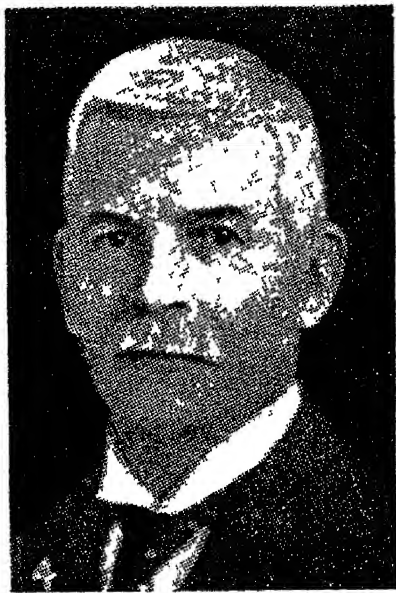
ONE of the greatest enemies of science is pseudo-science. In a scientific age, prejudice and passion seek to clothe themselves in a garb of scientific respectability; and when they cannot find support from true science, they invent a pseudo-science to justify themselves. We all know that the Devil can quote Scripture for his own purpose: to-day we are finding that he can even invent a false Scripture from which to quote.

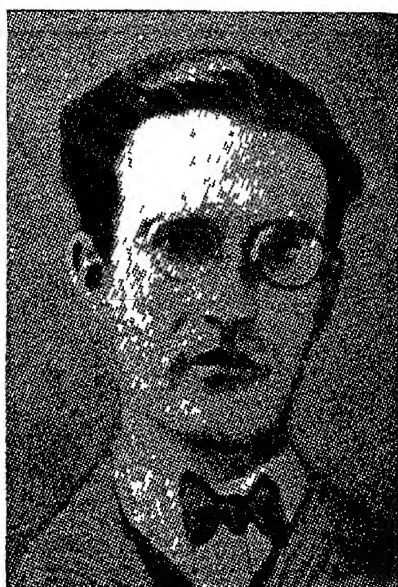
Nowhere is this lamentable state of affairs more pronounced than in regard to "race." A vast pseudo-science of "racial biology" has been erected which serves to justify political ambitions, economic ends, social grudges, class prejudices.

The purpose of this book is to bring together the chief scientific facts now available on the subject of "race" in man—in other words, the genetic differences between human groups—and to present them in the light of established scientific principles. Especial attention has been given to Europe

One of the main conclusions which emerge from such a survey is the extent of our scientific ignorance on this fundamental subject. Such ignorance ill accords with the passionate proclamations of certitude which are to be heard in certain quarters. However, it is a matter of observation that passion thrives on ignorance and that dogmatic certitude is a pathetic attempt to find a substitute for patient knowledge, which is always humbly conscious of its inevitable limitations.

In spite of the extent of our ignorance a certain body of real knowledge on the subject does indeed exist. To-day,









CHAPTER I

INTRODUCTION

OF all appeals to which human beings respond, few are as powerful as that of tribal, or—in a more advanced stage—of national feeling. Such sentiment is at the basis of modern corporate existence. This is doubtless based upon some form of the gregarious impulses, which in social animals receives satisfaction through the presence of others similar to themselves. In man, however, this impulse, like other so-called “instincts,” is not simple and straightforward in its operation. The likenesses upon which this “consciousness of kind” is based in animals are inborn: in man they are very largely the product of experience and social factors. Very many human activities, aspirations, and emotions have contributed, either naturally or artificially, to build up the great synthesis that we term a nation; language, religion, art, law, even food, gesture, table manners, clothing, and sport all play their part. So also does the sentiment of kinship, for the family has extended some of its age-old glamour to that wholly different and much newer aggregate, the national unit. We would stress the contrast between family and nation, since the family is an ancient biological factor, while the nation-state is a modern conception and product, the result of certain peculiar social and economic circumstances.

Before the Renaissance nations or national states in our sense of the word did not exist, though there were composite human aggregates related to the tribes of an earlier cultural stage. For the moment we will refer to the sentiment which animates tribal and national units alike, by the non-committal phrase “group sentiment,” for to call it

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“ racial ” is to beg a very important question which we shall later discuss. It is, however, clear that even in the pre-Renaissance stage, group-sentiment was a complex thing, certain elements being derived from the idea of kinship, certain others from local feeling, from economic necessity, from history, or from the prevalent form of religion.

The transference of the idea of kinship to the group-sentiment involved in national aggregates has been fateful for our civilization. For while group-sentiment is one of the most primitive emotional stimuli, it is also one of the most enduring. It is for this reason that the authors of moral and legal codes have frequently found it necessary to protect the body politic against aspects of group-sentiment which induced hostility to foreign elements. The Old Testament is full of allusions to such checks. “ The stranger that dwelleth with you shall be unto you as one born among you, and thou shalt love him as thyself; for ye were strangers in the land of Egypt: I am the Lord your God ” (Leviticus xix. 34). “ One ordinance shall be both for you of the congregation, and also for the stranger that sojourneth with you, an ordinance for ever in your generations: as ye are, so shall the stranger be before the Lord ” (Numbers xv. 15). One of the most gracious parables of Jesus is devoted to the discussion of who is our neighbour (Luke x. 25-37), and the very basis of Christianity is the proclamation, “ There is neither Jew nor Greek, there is neither bond nor free: for ye are all one in Christ Jesus ” (Galatians iii. 28).

Throughout the history of civilization the establishment and regulation of group-sentiment among those who are related little, if at all, save by political bonds has been one of the main preoccupations of statecraft. To achieve this the idea of kinship has repeatedly been pressed into service, and has, as a matter of fact, become paramount among the

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influences which have moulded to unity the various forms of human association. It has been expanded to embrace larger and still larger groups. It has spread beyond the family, the tribe, the loosely-knit federation of tribes to the yet more extensive aggregate, the nation.

When religions claimed to be universal, and when, as in our own age, empires boast that on them the sun never sets, the idea of kinship has been extended beyond the limits of the nation or the nation-state. Prelates have been the shepherds of many flocks and commonwealths have become families of nations. In all ages law, reason, and religion alike have laid emphasis on the brotherhood of all mankind. It was an ancient philosopher-poet who said, "I am a man, and nothing that is human do I deem alien from myself"; and a murderer who yet earlier asked, "Am I my brother's keeper?"

But especially the common elements that all men share have been the theme of the great spiritual leaders. Malachi's question, "Have we not all one Father? Hath not one God created us?" and St. Paul's assertion, "He hath made of one blood all nations of men for to dwell on all the face of the earth," have been echoed by a myriad voices. The community of mankind is a sentiment which has particularly appealed to teachers. "The same sky covers us, the same sun and all the stars revolve about us, and light us in turn," said the great Moravian educator Comenius (1592-1671).

Of all studies the most universal is that which we call science, and with the advent of that "new philosophy" in the seventeenth century the unity of mankind became especially emphasized. Does not science deal with precisely those judgments concerning which universal assent can be obtained? Such was the principle which the great French philosopher Blaise Pascal (1623-62) detected in the continuity of research in the sciences. "The whole suc-

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cession of men through the ages should be considered as one man, ever living and always learning."

Mankind, however, has shown itself to be still unprepared to accept the idea of universal human brotherhood. Tribal, religious and national sentiment has time and again overruled the sentiment for humanity. In combination with the consciousness of territorial association, the idea of nationality has yielded as fruit that patriotism which has proved itself one of the strongest forces known to history, second perhaps to religion alone. It is hardly necessary to emphasize the part played by patriotic sentiment in the moulding of Europe. The passionate desire for freedom from foreign domination—which we may note, in passing, is very far from the desire for freedom itself, with which it is often confused—was one of the preponderating factors on the European political stage of the nineteenth century. In Germany it broke the power of Napoleon and later created an Empire; it freed Italy from the rule of Austria and made her a nation, it almost drove the Turk out of Europe and provided nuclei of nationalist crystallization for Greece and for the peoples of the Balkans. It has also been the main idea in the formation of the "succession states" after the war of 1914-18.

All the movements towards national unity that were so characteristic of the nineteenth century present certain features in common. Among these we would especially note the rise of a myth, so similar in all these cases that we must suppose that it is a natural way of thinking for peoples in like circumstances. Among all the newer and almost all the older nationalities a state of freedom from external political domination has been projected into the past and associated with a hypothetical ancient unity, itself considered as derived from a common inheritance. The implications of this unity were left vague; sometimes they were conceived

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in a legal and historical sense, but often also they were grafted on to a conception of kinship regarded as a matter of physical transmission. "The Romans were as brothers in the brave days of old"—despite their diverse origin, actually emphasized by their own legend of the rape of the Sabine women! A "nation" has been cynically but not inaptly defined as "a society united by a common error as to its origin and a common aversion to its neighbours."

The economic movements of the nineteenth century gave rise to unparalleled social and political dislocations. The resulting conflicts have by some been interpreted as originating from a disparity of "racial" elements in the populations involved. It is however true that such disparity, if it were the real cause of these struggles, must have existed for many centuries in the populations before these disturbances declared themselves. The interpretation that has been put on these phenomena must therefore inevitably lead to an inquiry as to what extent the claims to "racial unity," which are explicit or implicit in recent nationalist controversy, have a basis in reality.

A further question necessarily arises in this connection. Even if we assume that for any given national unit it were possible to establish a specific human type, does the scientific investigation of questions relating to that type, or to any type, afford justification for the view that it should be fostered and its survival encouraged to the exclusion of all or any other types? In coming to a conclusion, we must remember that every people has ascribed to itself special powers and aptitudes. Such claims may, at times, assume the most ridiculous forms. There is not one but a multitude of "chosen peoples." Allowing for differences of atmosphere and language, some of the noblest claims made for the British, by Mr. Kipling for instance, are closely similar to the claims made for the tribes of Israel by the authors of certain Biblical books.

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“ Truly ye come of The Blood , slower to bless than to ban,
Little used to lie down at the bidding of any man.”

“ There’s but one task for all,
One life for each to give,
What stands if Freedom fall ?
Who dies if England live ? ”

With *The White Man’s Burden* may be compared the forty-ninth chapter of the book of Isaiah :

“ The Lord hath called me from the womb . . . And he said unto me, Thou art my servant, O Israel, in whom I will be glorified . . . It is (too) light a thing thou shouldest . . . raise up the tribes of Jacob and restore the preserved of Israel . I will also give thee for a light to the Gentiles, that thou mayest be my salvation to the end of the earth . . . That thou mayest say to the prisoners, Go forth, to them that are in darkness, show yourselves.”

When, too, we read in Madison Grant’s *The Passing of the Great Race* that the greatest and most masterful personalities have had blond hair and blue eyes we can make a shrewd guess at its author’s complexion. A flaw in his line of thought is that the same claims are made by brunets ! Passages claiming leadership of the world can, in fact, be elicited in abundance from French, German, Italian, Russian, and American literature, to say nothing of the literatures of lesser peoples. Nations, races, tribes, societies, classes, families—each and all claim for themselves their own peculiar excellences.

The term “ race ” is freely employed in many kinds of literature, but investigation of the use of the word soon reveals that no exact meaning is, or perhaps can be, attached to it, as far as modern human aggregates are concerned. Even the origin of the word “ race ” is uncertain. Etymologists have disputed as to whether it is ultimately of Semitic or Slavonic origin. Certainly it entered the Western

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languages late, reaching English from French in the sixteenth and German well on in the eighteenth century¹ It was originally used to denote descendants of a single person or couple, as in the phrase "the race of Abraham" in Foxe's *Book of Martyrs* (1570 edition, the first known occurrence in English) or in a spiritual sense the "race of Satan" in Milton's *Paradise Lost* (1667). The word was not employed in the Authorized Version of the Bible, where it is represented by the words "seed" or "generation."

The word "race" soon acquired a vagueness that it has never since lost. It is probable that this vagueness, together with the occasional employment of the word by certain scientific men of a previous generation and the supposed parallel between zoological and human "races," have combined to give it a special popularity with a group of writers who deal with scientific themes without adequate scientific equipment. From them it has descended to the literature of more violent nationalism.

It is instructive to look up the word *race* in a good dictionary. Thus *The Concise Oxford Dictionary* defines it in general as "Group of persons or animals or plants connected by common descent, posterity *of* (person), house, family, tribe or nation regarded as of common stock, distinct ethnical stock (*the Caucasian, Mongolian, &c. r.*), genus or species or breed or variety of animals or plants, any great division of living creatures (*the human, feathered, four-footed, finny, &c. r.*), descent, kindred (*of noble, Oriental, &c. r., separate in language, &c. r.*); class of persons, &c. with some common feature (*the r. of poets, dandies, &c.*)."

More specifically as an ethnological term, the trans-

¹ In Josef Richter's authoritative *Grammatisches Wörterbuch der deutschen Sprache*, 1791, the word is spelt *rasze*. This suggests origin from Italian *razza*. It probably entered Italian from Hebrew or Arabic *râs* = head, origin

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mission by descent of certain constant traits sufficient to characterize a distinct type is insisted upon.

A word is often none the worse for being inexact in its connotation; many words indeed are valuable for this very reason. But it is necessary in dealing with scientific themes to distinguish carefully between the terms that we use in an exact sense and those which are valuable for their very vagueness. The word "race," if it is to be used at all, should find its place in the latter class.

It has frequently been asserted that "race" is of the essence of nationality, and sometimes "race" and "nation" have been used as almost interchangeable terms. So far has this gone that many nationals, if questioned, would reply that their compatriots were all of one "race," with a proportion, more or less insignificant, of "aliens" who, by some means or other, have acquired their national status. A very little reflection and knowledge will show that this view is untenable. The belief, however, survives in many quarters where it should have become extinct, sometimes with the idea of "stock" substituted for "race."

It is a remarkable consequence of the War, that, perhaps for the first time in history, peace treaties have been directed, not so much towards the consolidation of the territorial acquisition of victory as towards the revision of the political map on lines which aim at having a basis in so-called "ethnic realities." For this purpose the "racial" argument was constantly put forward in terms of what, in the current phrase of the time, was called "self-determination," with occasionally some regard for the rights of the so-called "racial" (usually linguistic or cultural) minorities.

In the discussion which accompanied the settlement of the peace treaties, there was inevitably much confusion of thought in regard to these so-called "racial questions"—a confusion which has since been intensified rather than dissipated—for a slogan does not raise passions the less for

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being devoid of exact or analysable content or even for being contrary to reason and self-interest. As an illustration of the lengths to which such confusion of thought may go, it may be mentioned that in the recent discussion on the Polish corridor, it has been suggested as a means of finding out the "racial" affinities of the inhabitants of the area involved, that the question might be settled by consulting the voting lists of the last election !

Associated with the vague idea of "race" is the idea, almost equally vague, of "blood." The use of this word as equivalent to "relationship" is in itself of course based on an elementary biological error. In fact there is no continuum of actual blood between the parent and offspring, for no blood passes from the mother to the child in her womb. The misconception is very ancient and encountered among many peoples on a low cultural level. This false conception gained scientific currency in the centuries before the nineteenth from a mistake of Aristotle, who held that the monthly periods, which do not appear during pregnancy, contribute to the substance of the child's body (Aristotle, *De Generatione Animalium* I. § 20). The curious reader will find Aristotle's error repeated in a work in the Apocrypha, The Wisdom of Solomon (VII 2). The modern knowledge of the physiology and anatomy of pregnancy disposes completely of the idea of a "blood-tie" in its literal sense.

Quite apart from this venerable misconception, however, it is evident from the nature of the case that the actual physical kinship, which is frequently suggested as the basis of group-consciousness, culminating in so-called "race feeling" must be fictitious. In many cases it is, in fact, demonstratively false even in very simple forms of social organization.

We may take a familiar example from the Scottish clans.

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These, in theory, were local aggregates of families connected by kinship and each bound thereby to their chief. As an historical fact, however, these local units included settlers who came from other clans. This mixture of relationships might in time of crisis have entailed a divided allegiance, but the danger was overcome by the enforced adoption of the clan name. When the MacGregors became a broken clan and the use of the name was forbidden, its members averted the evil consequences of their outlawry by adhesion to other clans. Rob Roy (1671-1734), the famous outlaw and chief of the Gregors, adopted his mother's name of Campbell, and thus became an adherent of the Duke of Argyll.

Similarly in Ireland there was a system of wholesale inclusion of entire classes of strangers or slaves with their descendants into the clan or into its minor division, the sept. Those so adopted regularly took the tribal name. In the exceedingly ancient "Brehon Laws," which go back at least to the eighth century, there are regulations for the adoption of new families into the clan and even for the amalgamation of clans. Kinship, or rather what was treated as kinship, could thus actually be acquired. A number of legends of early Greece and Rome tell of similar clan fusions. Adoption into the tribe thus constantly becomes a fictitious blood-tie, and among many peoples of lower culture the ceremony of adoption is accompanied by actual physical interchange of blood. Many analogies in more advanced cultural units suggest themselves.

If a Scottish or Irish clan is of "mixed blood," what likelihood is there of purity of descent among the millions that make up the population of any great modern nation? Historically all the great modern nations are known to be the resultants of amalgamations of many tribes and of many waves of immigration. There is abounding evidence that adoption of extraneous human individuals or groups of

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individuals, comparable to that seen in the Irish and Scottish clans, has been continuous through European history and that over and over again it has profoundly modified the genetic composition of the population. This may be well seen in Southern France where in Provence the Greek colonies of Marseilles and elsewhere became integral parts of the population of Gaul. More familiar examples are to be found in the population of the British Isles, which has been made up from scores of waves of immigrants. Among the more modern waves were the Huguenot refugees who fled from France to the eastern counties of England at the Revocation of the Edict of Nantes, and the Flemish settlers who came at a somewhat earlier date to South Wales. Both have long ceased to be separate groups and their descendants can no longer be sharply distinguished from the extremely complex mixture which forms the general population of the country.

Group-sentiment, when submitted to analysis, thus proves to be based on something much broader but less definable than physical kinship. The occupation of a country within definite geographical boundaries, climatic conditions inducing a definite mode of life, traditions that gradually come to be shared in common, social institutions and organizations, common religious practices, even common trades or occupations—these are among the factors which have contributed in greater or less degree to the formation of national sentiment. Of very great importance is a common language, strengthened by belief in a fictitious “blood-tie.”

But among all the sentiments that nurture feelings of group unity, greater even than the imaginary tie of physical or even of historic relationship, is the reaction against outside interference. That, more than anything else, has fostered the development of group-consciousness, and has made possible the isolation and growth of a common life and common institutions. Pressure from without is prob-

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ably the largest single factor in the process of national evolution.

It may, perhaps, be claimed that, even admitting the incorporation into the nation of many individuals of "alien blood," it is nevertheless possible to recognize and differentiate the true "stock" of a nation from the foreign. It is sometimes urged that the original stock represents the true national type, British, French, Italian, German, and the like, and that the members of that stock may readily be distinguished from the others. The use of the word or the idea of "stock" in this connection introduces a biological fallacy which we shall presently discuss.

Certainly well-marked differences of "national type" are recognized in popular judgment. If, however, we wish to keep our view clear, steady and scientific, we must constantly recall to mind how subjective, how impressionistic, how variable and devoid of standards of reference such judgments constantly are. Our German neighbours have ascribed to themselves a Teutonic type that is fair, long-headed, tall and virile. Let us make a composite picture of a typical Teuton from the most prominent of the exponents of this view. Let him be as blond as Hitler, as dolichocephalic as Rosenberg, as tall as Goebbels, as slender as Goering, and as manly as Streicher. How much would he resemble the German ideal?

As for these so-called national types that travellers and others claim to distinguish, we may say at once that individuals vary enormously in the results of their observations. To some resemblances, to others differences, make the stronger appeal. Between two observers attention will tend to be directed to entirely different characters in the same population. Furthermore, general conclusion as to the character of any given population will depend on how far the material examined is what statisticians call a "true random sample."

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A traveller who lands at Liverpool and carefully explores the neighbourhood of the great industrial area by which that port is surrounded would form a very different view of the population of England from one who landed at Southampton and investigated agricultural Hampshire. Both would obtain different results from one who landed in London, and all three from the painstaking investigator who undertook a tour of observation from Land's End to John o' Groats. Observations in Normandy or in Bayonne will give a very different impression of the French from those made in Provence, while a superficial anthropological observer from Mars who had landed in some corner of North Wales might easily imagine himself among a Mediterranean people. Samples of the mixed population of the United States, formed from peoples of the most varied origin, might give an even more distorted impression of the general social and material conditions of its inhabitants, if the observations were confined to the East Side of New York, to the Scandinavian belt of the Middle West, to the creole population of New Orleans, or to the country districts of New England

When, in fact, the differences which go to make up these commonly accepted distinctions between "racial stocks" and nationalities are more strictly examined, it will usually be found that there is very little in them that has any close relation to the physical characters by which "race" in the biological sense can be distinguished. It is more than probable that, so far as European populations are concerned, nothing in the nature of "pure race" in the biological sense has any real existence. Whether it ever had is a problem which we shall discuss later.

In considering the characters of different nationalities, it will generally be found that the distinctive qualities upon which stress is laid are cultural rather than physical, and when physical they are often influenced by climatic and

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cultural conditions. Stature is certainly in part a function of environment. Pigmentation—fairness or darkness—unless submitted to scientific record and analysis, is an illusory guide. How many Englishmen could give an accurate estimate of the percentage of dark-complexioned people in England?—which is in fact a country whose inhabitants are more often dark than fair. Expression must obviously be determined largely by the content and habit of thought. In point of actual fact, the most crucial factors on which most observers' judgment will depend will be dress and behaviour. In dress, the use, degree, and contrast of colour at once attract the eye. In behaviour, facial expression, gesture, and speech, especially volubility and intonation, attract much attention. These, however, are in the main cultural factors, the results of fashion, imitation, and education. It is true that attitude and movement and the use of the voice have physical bases—for which, however, it is not possible in the present state of our knowledge either to assert or to deny a biological value as criteria of descent. But it is, nevertheless, certain that in virtue of their patent transmission by imitation they must be regarded as mainly dependent upon a cultural, and not upon a biological inheritance. It is interesting to note that in Hitler's book, *Mein Kampf*, his "racial" characterizations and differentiations, more especially of the Jews, are based not on any biological concept of physical descent—as to the essential nature and meaning of which he exhibits neither knowledge nor insight—but almost entirely on social and cultural elements.

CHAPTER II

HISTORY AND RECENT DEVELOPMENT OF THE SCIENCE OF MAN

THE wider variations of the human species must always have been obvious. Ancient records, both pictorial and literary, exhibit consciousness of the innate physical differences between various peoples as well as of their difference in clothing and ornament. Thus the Egyptians, by their use of colour in representing complexions, show that they made a rough classification of human types. In their wall-paintings four different colours are used, red, yellow, white and black, to represent respectively the Egyptians themselves, their Asiatic adversaries, usually the people of the North, and the Negroes.

Apart from such broader differences, the minor distinctions between tribes, that are made by mankind on a certain level of civilization, are emphasized by special marks, such as clothing, ornament, or bodily mutilations as scarrings, tattooing, and the like. These distinctive marks must often be of value in enabling a tribesman to recognize his fellow tribesmen, though they clearly have no biological significance.

From the ancient classical writers on history and geography we can obtain a good deal of detailed information concerning the manners and customs of the various peoples with whom the Greeks and Romans came in contact. Among these writers special respect must be paid to the father of anthropology, Herodotus of Halicarnassus (484-425 B.C.), who by temperament and circumstance was peculiarly fitted to observe the varieties of mankind.

The attitude of Herodotus toward the different peoples that he was contemplating is that of a modern man of

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science. His business is not to moralize but to observe. He found human beings divided into a number of groups, *ethnea*, and the *ethnos* forms his practical basis of classification. Now this word *ethnos* has, most unfortunately, been translated by the word *race* in the various editions of Herodotus—none of which, it may be observed, has been prepared by a scholar with biological training. Nevertheless it is quite certain that Herodotus did *not* mean race in the modern sense of that word. Thus, for instance, having remarked that the Greeks speak a different language from the Pelasgians who once inhabited Greece, and still survived there in isolated groups, he goes on to say that “the Hellenic *ethnos* has always used the same language; but since it parted off, feeble at first, from the Pelasgian *ethnos*, setting forth from a small beginning, it has increased to that great number of *ethnea* which we see, and chiefly because many barbarian *ethnea* have been added to it. Moreover the Pelasgian *ethnos*, so far as it remained barbarian, never made any great increase” (I. 58).

Thus his *ethnos* is at times a tribe, at times a political unit, at times a larger grouping, and in using the word he guards himself against treating either type of unit as necessarily or even probably of common descent. It is, in fact, what we in this volume label, non-committally, an “ethnic group.” He comes to the sensible conclusion that a group such as the Greeks is marked off from other groups by complex factors of which kinship is one, but that at least as important are language, religion, culture, or tradition. Thus Herodotus has the distinction of having forecasted the bases of nationality. It is especially notable that in regard to language Herodotus was wiser than some of the leaders of nineteenth-century opinion, for he well knew that a people can acquire a language by contact. Thus he escaped the trap of the linguistic fallacy which caught the nineteenth-century “Aryan” philologists (pp. 126–9).

DEVELOPMENT OF THE SCIENCE OF MAN

It would be impossible here to deal with all the Greek writers after Herodotus who treat of the manners and customs of the surrounding peoples. For the most part they ascribed such differences as they saw among men to the direct effects of environment, in a way which is incompatible with modern knowledge. "We mortals," says Polybius (203-121 B.C.), "have an irresistible tendency to yield to climatic influence. and to this cause, and no other, may be traced the great distinctions which prevail among us in character, physical formation and complexion, as well as our habits, varying according to *ethnea* or to separation in space" (IV. 21)

As regards the physical differences between human groups, the only ancient Greek works in which these are discussed in detail bear the names of Hippocrates and Aristotle.

The authorship of the so-called "Hippocratic writings" is still much discussed by scholars. One of the earliest of these writings is the famous treatise *On Airs, Waters, and Places*, which can hardly be later than 400 B.C. Its author notes physical distinctions between certain human groups and lays special stress on the differences of their head-form. He describes certain peoples as possessing extremely elongated heads and he thinks that this form was originally produced artificially. He also has much to say on what he believes to be the effect of climate on physique and on character.

Aristotle (384-322 B.C.), whose works were composed half a century or more after *Airs, Waters, and Places*, invented, or at least is the first known user of the word *Anthropologist*, which occurs in his *Nicomachean Ethics* in the sense of one who tells anecdotes about men, a "gossip" as we should say. The Aristotelian sense of the word is thus very different from our own, which was introduced from the French in the seventeenth century.

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Nevertheless Aristotle certainly had the idea of anthropological study clearly before him. He was aware of different types of men and of certain physical divergences among them. He placed man in the animal series, recognizing his physical resemblances and physical differences from other animals, and differentiating him by certain characters, such as the size and form of his brain. He recognized man as belonging to the special group to which we now attach the name of Mammals.

Among the Roman writers who tell us of human types and human customs, Lucretius, Pliny, and Tacitus take prominent place.

Lucretius (95-55 B.C.) is the first writer to draw an adequate picture of primitive man. For him, as for others of the Epicurean sect, there was no "Golden Age." Man has progressed from a state in which he was a naked dweller in caves, ignorant of fire and of even the simplest arts, with neither morals nor laws and with the sexual instincts of an animal. To defend himself against his enemies, the wild beasts, he first used stones, then fashioned rude weapons, and at last, having discovered fire by some natural accident, as by lightning, he followed it by the invention of metals. His picture is superb and, within its compass, has hardly been improved.

Our other Latin writers are a sad falling off from the Lucretian height. Pliny (23-79 A.D.) is a copyist and most of his material is of Greek origin. Despite his interest in strange and foreign phenomena he says surprisingly little of the differences among men. Tacitus (55-120 A.D.) is interesting for his well-known description of the physical and moral characters of the Germanic and Celtic tribes. So much has been made of this that it may be convenient to collect a few of the more relevant passages of his *Germania*, written in the year 98 A.D. In forming an estimate of this work there are several important facts concerning Tacitus

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and his writings that must materially affect our judgment. First, Tacitus was essentially a man of letters, wholly without scientific tastes and anything but a close observer. Secondly, his geographical ideas were extremely confused and were often fantastically erroneous, even by the standards of his own time. Thirdly, his views as to the character of the "Germani" were vitiated by his fear of their power as the chief menace to the Empire, as indeed it proved to be. Fourthly, he makes no distinction between the inhabitants of Gaul and the tribes east of the Rhine. Both are for him "Germani." This is in accord with the current Roman nomenclature, for the provinces of "Lower Germany" and "Upper Germany" were areas on the west bank of the Rhine. Fifthly, the tribes that he describes were all or most of them driven across the Rhine by later westward movements of peoples to the east of them. Thus they cannot be the ancestors of the modern Germans. Sixthly, Tacitus is a moralist. He is constantly holding up the virtues of the barbarians as examples to the degenerate citizens of Rome. Thus for Tacitus the German barbarian was used as was "the noble red man" by European writers of a few generations ago. Seventhly, the Romans thought that the word "Germani" was a Roman word—"a new and recent addition" (Tacitus)—meaning the "genuine" Celts as distinguished from the supposedly degenerate Celts farther west. It is, however, more probably a Gallic word, and whatever its meaning, was used by Gauls for the tribes east of them. With these considerations in mind we may turn to a few of the famous passages.

"The people of Germany appear to me indigenous and free from intermixture with foreigners, either as settlers or casual visitants."

We should here note that by settlers and visitants he is thinking of those who come from the Mediterranean area

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by sea, as he proceeds expressly to explain. He is not considering admixture with local tribes.

“A peculiar kind of verses is current among them by the recital of which, termed ‘barding’ (*quem barditum vocant*), they stimulate their courage . . . for it does not seem so much an articulate song as a wild chorus of valour.”

The use of the word *barditus* here is of great interest, since it seems to be of either Celtic or Scandinavian origin. Thus at the very opening of his narrative Tacitus shows that the manners of a people cannot be considered in isolation.¹

“I concur with those who hold that the peoples of Germany are untainted by intermarriage with others, a peculiar people and pure, like no one but themselves. Hence their physique, despite their vast numbers, is identical: fierce blue eyes, red hair (*rutilae comae*), tall frames, powerful only spasmodically and impatient at the same time of labour and hard work, and by no means habituated to bearing thirst or heat, yet accustomed, thanks to the climate and soil, to cold and hunger.”

This passage is the ultimate origin of the “Nordic legend,” the idea that the original inhabitants of Northern and Central Europe were all of this particular type. Historical and archaeological investigation, however, has failed to support Tacitus. It may be noted that red hair is rare among modern Germans, save among those of Jewish origin.

“The gods have denied them gold and silver . . . Even iron is not plentiful among them.”

¹ The word “bard” is certainly Celtic, but there is also a Scandinavian word *bardhi*, a shield = shield song. A variant reading is *baritum*, which might be translated “shouting”

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The suggestion of Tacitus that the Germani were without metals is erroneous. Not only iron but also lead and tin were being extensively mined on the soil that is now Germany in early Roman times. It may be that the mining was carried on under Roman direction.

“ Their generals control them by example rather than authority. If they are daring and adventurous and conspicuous in action, they procure obedience from the admiration that they inspire . . .

“ On smaller matters the chiefs consult, on larger questions, the whole community. Yet with this limitation, that what is referred to the decision of the people is first discussed by the chiefs.”

This is the historical basis of the so-called “ leadership principle ” of which so much is heard to-day.

In addition to Tacitus we have in both Latin and Greek geographical writing a great deal of detailed information, concerning especially the confused populations of Central Europe and of the nearer East, where, however, constant and very extensive tribal movements have made it difficult to identify the various peoples. Indeed it is highly probable that many of the tribal groups ceased to have any existence, except in name, during the age of the “ Wandering of the Peoples,” and during the Dark Ages that followed. Constant tribal movement, inter-marriage, the capture of women, slaughter, slavery, tribal adoption, and tribal conversion, were among the factors that led to the dissolution and decay of the native cultures and their ultimate absorption into new units under the glamour of Roman civilization. Names such as Saxony, Austria, Bulgaria, Burgundy, Lombardy, wander about the map during these ages of disorder, as a glance at an historical atlas will show. Such names certainly did not continue throughout to represent

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anything definite in the way of ethnic units. The immense solvent power of the Church, economic pressure on the people, the seizure of women, slavery, and the power-hunger of potentates have done their work very thoroughly. Whatever may have been the condition of Europe in pre-historic times, everywhere in Europe to-day, and especially in Central Europe, there is an inextricable human mixture.

A glance at a map illustrating the known movements of the peoples of Europe during the first seven or eight centuries of the Christian era should disabuse the mind of any idea of tribal fixity or "racial purity." Europe was a very seething pot and that which came out must have been very different from that which went in. Such were the Dark Ages.

The Middle Ages that succeeded them have left us hardly any observations of direct anthropological value. With the revival of letters, of science and of art, the study of man began to assert itself seriously. The medical schools initiated the formal study of anatomy as early as the thirteenth century, but their work was unprofitable until the painters and sculptors of the fifteenth century began those exact investigations of the human form that were demanded by the naturalistic schools of art. Most of the greater Renaissance artists, Michelangelo, Raphael, Leonardo da Vinci, Durer, have left memorials of their anatomical and anthropological interests and studies. Leonardo (1452-1518) in particular, spent many years in anatomical and physiological investigation. He loved to distinguish different physical types of men and he laid great emphasis on the form and proportions of the skull.

The Nuremberger Albrecht Dürer (1471-1528) made a series of most laborious comparative measurements of the different parts of the body, including the head, which he recorded with great care. He recognized that the proportions of the body of the German population among

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which he lived were very various, and he distinguished and figured very exactly several extremely divergent physical types which he traced in both sexes. Durer observed how very frequent among the Germans was a broad head flattened at the back. The idealized Teutonic type, which was usual in memorial statues of the German nobility before Durer's day, gives way in his faithful and realistic drawings, especially those representing the life of the people, to a representation of the commoner and more characteristic "Eurasian" type,¹ with flattened occiput and crown, which is almost photographic in its likeness to a well-recognized modern German type.

The effective father of the modern scientific study of man's body was unquestionably the Belgian Andreas Vesalius (1518-64), Professor at the University of Padua and later physician to the Emperor Charles V. Vesalius was the first to expound publicly and systematically the structure of man's body as based directly on his own observations and researches. His services to anatomy have been justly compared to those of Galileo and Copernicus in the field of astronomy. Vesalius was well aware of the differences in physical type to be observed in different human groups. It is interesting to observe that he too calls special attention to the shape of the head. "It appears," he remarks, "that most nations have something peculiar in the shape of the head. The crania of the Genoese, and, still more remarkable, those of the Greeks and Turks, are globular in form. This shape, which they esteem elegant and well adapted to their practice of enveloping the head in the folds of their turbans, is often produced

¹ "Eurasian" is the term used by Sergi and many other ethnologists to designate a great ethnic group extending from Persia to Central France and beyond and including the so-called "Alpines" (see pp 149-50).

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by the midwives at the solicitation of the mother. The Germans have generally a flattened occiput and broad head because the children are always laid on their backs in the cradle; the Belgians have a more oblong form because the children are allowed to sleep on their sides."

There are several points in this passage that are specially worthy of note. We may discount the facile attempt to explain the head-form,¹ but we cannot pass over his ascription of the Eurasiatic type of head to the German population. Vesalius, though born in Brussels, was well acquainted with Germans and German conditions. Moreover, he was himself of German origin and his name means "man of Wesel," a well-known town in Rhenish Prussia.

The problem of finding a method of measurement that could express the differences between individuals and types was attacked by the Dutch anatomist Adriaan van der Spiegel (1578-1625), who like Vesalius was a professor at Padua. Spiegel introduced "cephalometric lines." He drew four lines in certain directions, within the skull, and if these lines were equal to each other he regarded the skull as regularly proportioned.

Physical anthropology was advanced along an interesting and fruitful line by the London physician Edward Tyson (1650-1708). He began the anatomical study of the

¹ Recently a statement summarized in *The Times* (19th November, 1934, p. 12), was made by a prominent German physical anthropologist, Professor Kruse of Leipzig, to the effect that the shape of the head was largely determined by the pillows provided for infants. If soft pillows are used, the child tends to lie on the back of its head, which will cause an originally long head to become rounded! Thus a round head is no longer necessarily a sign of a non-Nordic ancestry.

This conclusion is wholly at variance with the facts and with the findings of physical anthropologists outside Germany. It is doubtless a device for disposing of the inconvenient fact that a large percentage of Germans do not have the true Nordic long head (p. 148), without dropping the Nordic Myth.

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anthropoid apes. He compared their structure to that of human beings, to whom he saw they were closely akin. In this, however, he was not alone, for all the early anatomists, Leonardo, Vesalius, and Spiegel among them, had seen the resemblance of the anatomy of man to that of mammals and especially to that of monkeys, though they had no opportunity of studying anthropoid apes.

The eighteenth-century demand for order and system was voiced specially by the great Swedish naturalist Carol Linné, better known as Linnaeus (1707-78), the Latinized form of his name. By the genius of Linnaeus the study of man was placed in better perspective. In the Linnaean system man is given a definite place as an integral member of the animal series. He is to be studied by the same methods as other members of the animal kingdom.

The special physical study of the different types of man was advanced by the wise, witty, and humane teacher, J. F. Blumenbach (1752-1840) of Gottingen. He was the first to place anthropology on a rational basis. His work, *On the Natural Variety of Mankind* (1775), laid the foundations of anthropological classification based on physical measurement, and he wielded influence in anthropology for sixty years after that most remarkable doctoral dissertation. Blumenbach is responsible for the term "Caucasian" (1795) as a designation of the "white" peoples, the type-skull of which came from Georgia, which is on the Asiatic side of the Caucasus. The main scientific idea that emerges from his work is the unity of mankind, a unity equally of mind and of body. The various types of men differ from each other in degree and not in kind and are connected with each other by innumerable gradations.¹

¹ Blumenbach speaks always of the unity of the human *genus*, but he uses *genus* in the Aristotelian sense of "kinship." It is quite clear that he regarded all men as of one *species* in our modern sense of that word.

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"Mankind," it has been said, "had forgotten its original unity. Blumenbach restored it."

The exact mathematical expression of head-form was the subject of attention by the brilliant Dutch investigator Pieter Camper (1722-89). In his famous posthumously published *Dissertation physique* (1791) he applied himself to this problem and dwelt especially on the variations of the "facial angle" at different ages and in different types of men. Camper's work was particularly valuable for the criticism and attention that it stimulated.

By the nineteenth century not merely were the external dimensions of the skull being measured with a view to distinguishing between varieties of mankind, but the proportions of the skull and its internal capacity (measured by filling it with seed), were also being observed. The measurements which had been accumulated in accordance with the methods formulated by Blumenbach were, however, by no means susceptible of ready manipulation. In 1840 the Swede Anders Retzius (1796-1860) of Stockholm introduced the "cranial index"—that is, the maximum breadth of the head expressed as a percentage of the maximum length—as a means of describing the various types of skulls. He was the author of the now familiar terms "*dolichocephalic*" and "*brachycephalic*" for the relatively long-headed and broad-headed types of skull, upon which the whole of modern craniometry is based (pp 100-101).

A great debt is due to the French anthropologists of the nineteenth century, among whom special mention must be made of Paul Broca, Paul Topinard, and J. L. A. de Quatrefages. Broca (1824-80) in particular was an original thinker who aided the development of every branch of physical anthropology. Especially he improved the instruments of measurement and thus raised the standard of accuracy of observation. His pupil Topinard (1830-1911) advanced the study of the science by his enthusiasm and

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did much to propagate the new evolutionary ideas inspired by the teaching of Charles Darwin (1809–82) as applied to man; while de Quatrefages (1810–92), a distinguished zoologist, published works covering a wide range of topics, but more particularly dealing with the varieties of man.

In Germany, anthropological studies owed most to the great liberal professor Rudolf Virchow (1821–1902), to whom, more than to anyone else, is due our knowledge of the physical anthropology of Central Europe, as well as the impulse towards the study of pre-historic archaeology in that region. Instigated by Virchow, the German government authorized in 1876 an official census of 6,000,000 school children of the Empire. Physical characters of children are not now regarded as so anthropologically significant as they were then, and perhaps the investigation, itself the result of acrimonious controversy, was not as impartially made as it might have been. Nevertheless it has served as a stimulus for later investigations.

We must pass over the names of many distinguished Continental anthropologists whose labours and example have inspired research, but we must mention the Italian Giuseppe Sergi who proposed to abandon measurement for descriptive classification based upon unaided observation of shape. Although his methods have not been generally accepted, they have great importance in their bearing upon the nomenclature of craniology, and our ideas of the distribution of various types of man.

Until about 1860 anthropologists had been mainly concerned with the measurement of dead bones of the skeleton. Measurement and observation of the living, however, were the basis of the valuable work on the physical characters of the population of Great Britain, which we owe to John Beddoe (1826–1911). After studying the physical characters of various continental peoples, he published a very careful study of hair and eye colour in Ireland (1861). For

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many years after this he travelled from one end of Great Britain to the other observing the physical character of its inhabitants and more particularly the distribution of hair and eye colour. His work is the starting-point of all observations and study on the physical characters to be found in the population of the British Isles.

The question whether or no all living men are of one species long vexed anthropological minds. The concept of *species*, very familiar to the modern naturalist, had existed from antiquity and had become hardened into rigid formulae by the systematic work of Linnaeus. That great naturalist's treatment of species as fixed entities which had endured from the time of their creation, precluded anything in the way of a scientific attack upon the origin and relations of the different types of man, all of which were included under the Linnaean species of *Homo sapiens*. The difficulty which arose from this conception of species as immutable and unchangeable became apparent in a very striking manner when the question of the origin of man came to the fore. This question had been debated by the philosophers of Greece and Rome. The Christian Church accepted the orthodox view set out in the early chapters of Genesis. No little difficulty, however, arose with the discovery of America, whose "red-skinned" aborigines could not be made to fit into any theory which derived the inhabitants of the previously known continents from the three sons of Noah. Theories which admitted pre-Adamite inhabitants of the earth were put forward to explain such races, while the Spaniards excused their ill-treatment of American Indians on the ground that they were not the descendants of Adam and Eve—one example among many of a rationalized justification on metaphysical grounds of harsh behaviour towards a so-called "inferior race."

It is unnecessary to enter into any detailed examination

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of the controversy between those who believed in a single line of descent for the human race (*monogenists*) and those who held to a multiple descent (*polygenists*), for modern theories of evolution and heredity have deprived it of all but historical interest.

In the eighteenth and early nineteenth centuries a body of opinion was growing that man was the product of a process of evolution. The well-known Lord Monboddo (1714–99) was in advance of his time in tracing a definite relationship between man and monkeys. Lamarck (1744–1829) and Etienne Saint-Hilaire (1772–1844) were prominent in their advocacy of the view that species were not fixed, and did much to pave the way in the world of scientific thought for the reception of the hypothesis of Charles Darwin (1809–82), formulated in the *Origin of Species* (1859) and the *Descent of Man* (1871)

In the opening passage of the *Descent of Man* Darwin points out that “T. H. Huxley has conclusively shown that in every visible character man differs less from the higher apes than these do from the lower members of the same orders of Primates.” This was, however, very different from a demonstration of any intermediate form between man and the higher man-like apes.

A short time before the appearance of the *Origin of Species*, there had been discovered remains exhibiting certain characters of a supposedly ancestral human type. The long bones and part of the skull of a man-like creature were unearthed in 1856 in the small ravine of Neanderthal in Rhenish Prussia. The peculiarities of this skull were misinterpreted by Virchow as the products of disease. Huxley ultimately established it as allied to that of modern man, but the most ape-like that had then been found. The remains were assigned to a different species from modern man and became later designated *Homo neander-*

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*thalensis*¹ Some later authorities are inclined to place it in a separate genus. In any event there can be no doubt that this uncouth species must have been widespread, for remains of it have been recovered from Germany, France, the Channel Islands, Gibraltar, Malta, Italy, Jugoslavia, and Palestine. Neanderthal man made a distinctive type of stone implements, the so-called "Mousterian" (pp. 50, 53), which have a much wider range than his known skeletal remains. He was a hunter and he knew the use of fire.

Huxley devoted much energy to the exposition of the application of evolutionary doctrine to man. He laid down the main lines of study in tracing the affinities of man and the anthropoid apes. Subsequent modifications due to the work of Arthur Keith, Elliot Smith, and many others, although revolutionary in their results, have not radically changed the general principles of study which Huxley formulated.

Since the discovery of Neanderthal man, a number of other species of fossil man and several fossil genera allied to man have been discovered. Moreover, several genera of apes approaching somewhat nearer than living forms to the human stem have also been found. The ape-man series is now fairly well known, though not so completely as that of many mammalian groups which, like the Ungulates, happen to be more frequently preserved as fossils.

From the Quaternary or Pleistocene period, fossil remains of more than a hundred individuals are now known, distributed among some ten distinct species of the family Hominidae. These fossils and their dates are concordant with the belief, forced upon us on anatomical and embryological grounds, that man is descended from an ape-like progenitor. Probably the point of divergence from the

¹ A Neanderthal skull had been found at Gibraltar as early as 1848, but it had not been brought to scientific notice.

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simian stock of what was to become the human stock is to be placed further back in time than was till recently supposed. It may perhaps go back as far as the Miocene (mid-Tertiary) or even the Oligocene. In any event it must have been a very long time before this branch acquired the characteristics—of posture, brain, and speech—which would permit of its being styled *human*.

The human stock in its earliest phases followed the usual pattern of animal evolution by diverging into a number of separate genera and species, adaptively specialized in different ways in different parts of the world. The discovery and elucidation of these genera, *Palaeanthropus* or Heidelberg man, *Pithecanthropus* or Java man, *Eoanthropus* or Piltdown man, and *Sinanthropus* or Peking man, has absorbed a large part of the attention of physical anthropologists during the last thirty years. Interesting though these creatures are, they concern us but little, for they became extinct before or soon after the genus *Homo* became distinguishable and long before our own species *Homo sapiens* was differentiated.

Evolutionary doctrine has not only been extended to the structure of man, but also to his habits, his language, his customs, his religion, his social organization, even his ways of thinking. Thus has arisen the modern phase of the science of *Anthropology*. Ultimately this branch of study has become continuous with *Sociology* which discusses the social evolution of man. Anthropology and Sociology must lean, as sciences, on the doctrine of descent, but they have much to derive from the study of the phenomena of heredity and from modern biological discussion of the mechanism by which variation and modification is brought about.

The extension of evolutionary doctrine to the arts of early man owes a deep debt to the great French investigator, Jacques Boucher de Perthes (1788-1868). He was a

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civil servant who devoted his leisure to antiquarian research. As early as 1830 he discovered in the gravels of the river Somme certain flints which he believed bore evidence of very ancient human workmanship. In 1846 he demonstrated the existence of such flints in company with the remains of elephant, rhinoceros, and other tropical or extinct forms. In his great *Antiquités celtiques et antédiluviennes* (1847-64) he established the existence of men in early Pleistocene times, from the evidence of their implements. His findings were verified by the English geologist Joseph Prestwich (1812-96) as early as 1859, the year of publication of the *Origin of Species*. In 1863 Boucher de Perthes clinched this view by discovering near Abbeville a human jaw associated with worked flints in a Pleistocene deposit.

These conclusions were accepted, though with caution, by the geologist Sir Charles Lyell (1797-1875) in his *Antiquity of Man* (1863). Since that time the study of the works and arts of stone-age man has developed in parallel with the study of his physical structure. The successions of the Old Stone Age or Palaeolithic cultures, crafts, and art, and their supersession by those of the New Stone Age or Neolithic are now familiar. They have been related to the various glacial and interglacial periods of the ice age, so that we can with some degree of assurance say at what date they were produced, and under what conditions of climate their producers lived. Classic works along these lines are *Le Préhistorique* (1882) of Gabriel de Mortillet (1821-98) and the writings of Joseph Déchelette (1862-), summarized in his work, *Manuel d'Archéologie* (1908-14).

Before turning to consider the main varieties of living men, it seems desirable to review briefly our knowledge concerning the distribution in time and space of early types of man.

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It is well known that the development of man, especially in Europe, is intimately bound up with the so-called "Ice Age" or Pleistocene period. There is still dispute among geologists as to details, but the following account summarizes the views most widely held. During the Pleistocene, there was not a single "Ice Age," but several, probably four, periods during which a great part of Europe was buried beneath ice-sheets several thousand feet thick. The climate between some of these glacial periods was at least as warm as it is at present. The second interglacial lasted considerably longer than the time since the last ice-sheet disappeared and was largely a moist period of markedly warm temperature. The glacial period as a whole was characterized by (geologically) rapid changes of climate.

At the maximum of the last (or fourth) glaciation a great ice-sheet covered the whole of Northern Europe, roughly to about 51° N. lat. Between this area and the Alpine snow-fields Central Europe must have been almost uninhabitable, and the conditions made human life very hard for most of Europe north of the Mediterranean. As the climate ameliorated, though recurrent cold periods intervened, the land again became habitable.

Modern types (Neanthropic) of man appear in Europe as the last ice-sheet began to retreat and the earlier types (Palaeanthropic) seem to have disappeared, but apart from Neanderthal man, whom we shall shortly discuss, we know little of them, though it is possible that some were akin to Neanthropic man.

Some of the earliest types, like the Java Ape-man (*Pithecanthropus*) and Peking man (*Sinanthropus*), were very primitive in many physical characters, and in various ways intermediate between modern man and the apes. Among the species of more recent fossil men which show marked divergence from existing man, Neanderthal man is

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the only one of which the remains have been preserved in any numbers, as well as the only species to have survived to the Middle Palaeolithic.

There is some difference of opinion as to the status of Neanderthal man. By some anthropologists he is regarded not as belonging to the same genus as ourselves, but rather as a specialized offshoot of one of these primitive types. In any event, it should be emphasized that our knowledge of the ancestry of modern man is fragmentary and speculative, and that his remains are not found, until very recent periods. Man of any type comes upon the scene very late in the Evolution of Life. Modern Man, *Homo sapiens*, very late in the Evolution of Man.

There is evidence that over a considerable stretch of Eurasia the earliest men made stone implements from flakes, and also that the men who made most of their stone implements from cores came into Europe from Africa. No remains (Chellean, Acheulean, etc.) of the makers of core tools have been found in Europe, and the African evidence is very unsatisfactory.

At all events we know that Europe received immigrants of various types of *Homo sapiens* from Africa and Asia whose implements are typically, but not universally, blade-tools, a form of flake technique (Aurignacian, etc.) Representatives of these earliest of European types can apparently still be distinguished among the existing populations. They do not form definite groups, but occur rather in local pockets where individuals still exhibit characters reminiscent of those remote times.

The Old Stone Age presents five main cultural phases (not including the Solutrean, which was an immigration from the East of no great duration) each dated by reference to phases of the Ice Age. They are named Chellean, Acheulean, Mousterian, Aurignacian, and Magdalenian. Until recently we should have said that the skeletal remains

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CLIMATE PERIOD HUMAN TYPE

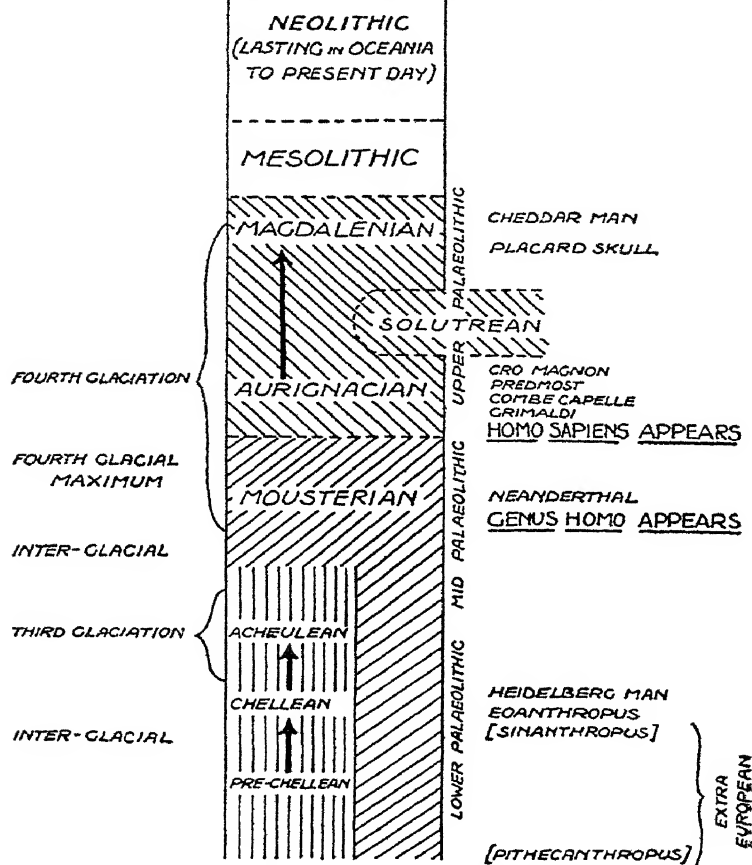


Diagram illustrating probable course of (Quaternary) Prehistory in Western Europe. The varieties of flint chipping technique are shown by shading, Core Industry |||||, Flake Industry |||||, Blade Industry |||||. The Core Industry is continued in an attenuated form into the Upper Palaeolithic but this is not shown in the diagram. Arrows → indicate continuity of stone technique.

of *Homo Sapiens* first appear in association with the Aurignacian culture of Upper Palaeolithic times, but a

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recently propounded re-dating of a fragment of a skull found in London in 1925, and popularly called the "lady of Lloyds," together with recent discoveries in East Africa, suggest an earlier date. It is, however, certain that at the close of the Ice Age *Homo sapiens*, with a distinctive culture, had become established as a specific type, already including a number of varieties, and had attained a geographical distribution which covered a large part of Asia, Africa, and Europe. Neanderthal man may have survived for longer or shorter periods in remote and isolated areas. There is no convincing evidence in favour of Neanderthal elements having become incorporated into the existing populations of the world, although the caves of Palestine have recently yielded remains exhibiting a remarkable mingling of Neanderthal and *sapiens* characters. Further, on present evidence it is not possible to indicate the relationship, if any, between the known examples of Palaeolithic *Homo sapiens* and existing "races."

Throughout his history *Homo sapiens* has shown a remarkable capacity for enduring a wide range of climatic and geographical environment. His habitat extends from the Equator to the Arctic. It must not be overlooked, however, that his endurance of climatic variation, although inherently wide, is no wider than that of certain other mammals—for example the mouse—and was not originally and naturally as extensive as it has now artificially become. For, to an ever-increasing extent, man carries his climate with him. He tempers the elements by the use of clothing, he provides himself shelter against the weather by house-building, he modifies his diet by agriculture and prepares his food by cooking. His adaptation to climate is therefore in large part cultural.

When we turn to the question of origins, there are two problems that here concern us, the origin of man in general,

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and the origin of modern man in particular, that is of the family Hominidae, and of its only surviving representative, the species *Homo sapiens*.

As regards the first point. Man's lack of natural defence against extreme cold points to a tropical or at least warm-temperate climate as having characterized his place of origin.

This however is purely indirect evidence. When we turn to direct evidence, we find that it is still fragmentary, so that the answers to the questions of when and where man originated must in the present state of our knowledge be at best very vague, despite the many recent and dramatic additions to human palaeontology and archaeology. It must be borne in mind that only an extremely small proportion of the earth's surface has yet been adequately explored for the purpose of investigating prehistory. Western Europe is still the main source of our detailed knowledge. Nevertheless we may say that it is almost certain that man is descended from a subtropical or warm-temperate ape-like animal, certainly several million years ago, and that it is quite certain that Europe is not his original home. Recent discoveries in Africa and Eastern Asia indicate the vast territory which may still be profitably explored for light upon the question.

With regard to the actual species, *Homo sapiens*, our answers must still be almost equally indefinite. Again it is certain that Europe was not his original home. America, too, is ruled out, as it is also in the case of the Hominidae as a whole. At the moment the balance of probability is more or less equal as between Africa and Central Asia. The date of his origin is of course much more recent, and must be reckoned in terms of hundreds of thousands, not of millions of years.

We speak of man as "wandering at will over earth's surface," but there are certain factors that seem to militate

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against the complete mobility of some early types of *Homo sapiens*. The nearer a type approaches to complete physical adaptation to its environmental conditions, the greater the difficulty it must experience in adaptation to another environment. Of course, cultural specialization also plays its part here, as is seen in the decay of primitive peoples in contact with European civilization. Yet, taking all circumstances into account, it seems clear that the differentiation, at least of the major modern human types, as known to us to-day, represents some considerable degree of adaptation to the conditions of the environment. The dark skin, which characterizes most of the peoples living near the Tropics, is almost certainly the result of the elimination by natural selection of the fairer types of pigmentation less fitted to afford protection against the actinic rays of the sun. The greater number of sweat glands in the Negro and the reduction of their number among the yellow-skinned peoples are probably adaptations to hot and to dry conditions respectively. Similarly the striking variations in the breadth of the nose according to latitude may be adaptively perpetuated through natural selection. A white skin is a disadvantage in the Tropics and a wide nostril in the Arctic.

The differentiation of these main groups from the stem of the species could only have occurred in areas in which, over a more or less prolonged period of time, they were to a considerable degree isolated from the rest of the human stock. Only so could inbreeding and selection have brought about markedly divergent and relatively pure racial types. Such conditions, however, must have been rare and also transient. They may account not only for the major adaptive types, but also for some of the various extinct sub-types of *Homo sapiens* of which the last survivors were perhaps the now extinct natives of Tasmania.

In discussing the geological and prehistoric past, readers

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constantly demand a time-scale which the cautious man of science reluctantly presents. The estimates must be allowed to have a wide margin of error, especially for the earlier periods.

It is perhaps a million years since Eoanthropus and Sinanthropus roamed the earth.

The Chellean culture may have begun, at a rough guess, half a million years ago.

The Mousterian culture with its exponent, Neanderthal man, began to flourish some fifty or a hundred thousand years ago.

The Aurignacian culture and the varieties of *Homo sapiens* associated with Grimaldi and Combe Capelle, Predmost and Cro-Magnon may not be more than twenty to forty thousand years old.

The invention of cereal agriculture was between 4000 and 5000 B.C., and probably emanates from Egypt or Western Asia, where human history, as distinct from pre-history, begins about 3400 B.C.

Copper, the first metal to be used, has been found in Egyptian tombs recognized as earlier than of the Predynastic period, which terminated before 3000 B.C. The earliest metal objects found in Britain date from about 2000 B.C., and this therefore gives us approximately the period at which the Neolithic phase of culture ended in Western Europe. These copper objects are associated with the incoming of the Beaker-folk, c. 2000 B.C. (pp 150-1).

It is obvious that the study of the different varieties of mankind cannot proceed to any great length without accurate information as to the physical characters of the inhabitants of the different parts of the globe. Since Huxley's day the activities of anthropologists have been engaged in the collection of detailed evidence rather than in attack on the larger problems of ethnology. It cannot

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be said that this study has progressed in the same degree as the study of biology in general. One important reason for this lag is now becoming apparent. The application of modern genetical theory to the problems of biology has still to make itself adequately felt in the domain of the anthropologist. As will appear in a later chapter, the bearing of the neo-Mendelian theory of inheritance upon human racial affinities, though clear in principle, has not yet been worked out in any detail, and until this has been accomplished, the data of the ethnologist are not susceptible of such definite interpretation as might be wished. Furthermore, in the absence of the genetic stimulus the field anthropologist has often failed to collect the most significant data or to present them in a manner susceptible of exact interpretation.

In modern genetical (neo-Mendelian) theory, the anthropologist would appear to have ready to his hand an effective instrument of research, when once sufficient data for its application have been made available through accurate scientific observation. In another direction a complementary method of analysis has been placed at his service by the work of Karl Pearson and his school in the study of statistical methods as applied to biological and anthropological problems ("Biometrics"). These are of very great value, since they provide an efficient method of guarding against generalization upon imperfect or inadequate data—a scientific stumbling block on which anthropologists have frequently tripped

So far as the interpretation of the inter-relationships of the groups of modern men are concerned the reader should realize that the current conclusions of anthropology are tentative to a far greater degree than are the generally accepted conclusions of most biological sciences. It is just where knowledge is least sure that feeling always runs ughest! We feel much more strongly as to the conclusions

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of economists, sociologists, and anthropologists than of anatomists, physiologists, and zoologists.

We have so far been concerned with physical characters. We may now consider for a moment the correlation of mental characters upon which is based much of the argument as to "racial purity" and "racial inferiority" which has been current at various times.

The impressionistic characterization of peoples has been a favourite pastime for travellers from Herodotus onward. Its modern form appears with the first budding of the spirit of nationalism in the sixteenth century. The all-embracing character both of the Holy Catholic Church and of the Holy Roman Empire was then breaking up before the forces of the Reformation and of the Renaissance, and of the national spirit associated with the resultant changes in outlook. The interest in differences of temperament in different peoples began to be of moment to diplomats and politicians. Accordingly we find, for example, that it was the custom of ambassadors and plenipotentiaries "lying abroad" to report to their home governments on the temper, habits, and customs of the people to whom they were accredited. Of these the best known to historical students are the reports of the Venetian ambassadors, whose accounts of the habits and mentality of the English people under Henry VIII show very acute observation.

A prototype of the globe-trotters who spend a few weeks or months in country after country and sum up the characters of the inhabitants in sweeping generalizations—sometimes in letters to the daily press—was the English physician Andrew Borde (1490–1549). By 1542 he had written his *Fyrst Boke of the Introduction of Knowledge*, which has been well described as the "first Handbook to Europe." Borde was a good but shallow observer,

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especially interested in language, and was the first to print passages from the Gipsy and the Cornish languages. He covered a wide area in his travels, visiting almost every European country and parts of the Near East. We may glance at some of his characterizations.

Englishmen are, of course, bold, strong, and mighty, and Englishwomen full of beauty. The English are, so Borde assured us, "as good as any people in any other land and nation that ever I have travelled in, yea, and much better in many things, especially in manners and manhood" Their chief fault—if it be a fault—is a harmless desire for new fashions ! What a contrast to the Cornish, many of whom—poor devils !—cannot speak a word of English. They are always quarrelling and going to law with each other, they are very greedy and always hungry—which may perhaps account for their greed—and their cooking and brewing are alike detestable. The Welsh are, if possible, worse—dishonest, feckless, and superstitious. As for the Irish, they are covered with lice and are no use at all—except those among them that are of the "English pale" who are nearly as good fellows as the English themselves, save that they are somewhat testy—which is perhaps natural considering the company they have to keep ! The Lowland Scot is always boasting. He is a dissembler, never keeps his promises, and has disgusting table manners. Continental peoples display comparable faults. The inhabitants of Brabant are very conservative, tremendous drinkers, extremely pious, and their women modest. They differ from the Gelderlandes, who are hars, brawlers, and always poor. On the Rhineland the people are kind but they constantly get drunk and make a mess. These again differ from the Germans east and south of them, who are rude, rustic, very boisterous in their speech, and careless in their dress, but love to swagger in furs and feathers. The inhabitants of Saxony, Borde naively thinks, are the

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descendants of the invaders of his own country, and he " marvels greatly how the Saxons should conquer England . . . for I think, if all the world were set against England, it might never be conquered." The Poles are crafty dealers, don't like war and speak German badly. And so in a few sweeping phrases he dismisses, one after the other, all the peoples of Europe.

In the seventeenth century, the half-Scottish, half-French poet John Barclay (1582-1621), who had lived long on the Continent, wrote on somewhat similar lines a readable account of the country and inhabitants of France, Britain, Germany, Italy, Spain, Hungary, Poland, Russia, and other countries. He is convinced that there is a " proper spirit to every region, which doth in a manner shape the studies and manners of the inhabitants according to itself." Barclay being part Scot and part French naturally distributes his favours between these two peoples, who fairly divide the virtues, and leave few over for the others. Thus, according to him, the English are gluttons and their lower classes puffed up with pride and, *horribile dictu!*, even with wealth. " The Scots," however, " are of dispositions fitted for society, of behaviour and gestures of the body excelling other nations, and like unto the French in all things but the riches of their country "

As for the Germans, they are one and all " infected with a wonderful love of drinking," a habit which impressed him immensely. Moreover, " they hate all kinds of subtlety, either because they themselves, loosened by drink, cannot firmly keep a secret in, or because their minds in such coarse bodies know themselves to be dull and are ever suspicious of the subtleties of others as bent against them and aiming to overreach them Their magistrates bring to the tribunal no minds adorned with high parts, but cleave fast to the institutions of their fathers with an efficacious diligence. The people are very obedient to those that

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govern them, and will often give credit to their magistrates even in points of religion.

As for learning among the Germans, he assures us that "they write more than they read; and value their reputations by the number and greatness of the volumes which they publish in print. Their wits, as they are dark and dull, so are they strong to endure endless toil." He generously allows, however, that Germans are less given to treachery, deceitful cunning, or lust than some that he could name and that they possess also some positive virtues.

Such sketches of what we may call "collective temperament" are early examples of the modern practice of assigning certain qualities regarded as admirable and worthy of cultivation to certain peoples (which invariably include one's own) while others, less praiseworthy, are deemed to be the predominant characteristics of other peoples, the most undesirable of whom always include those whom one fears. The habit can be traced through the literature dealing with ethnic and national questions in the seventeenth and eighteenth centuries and lies at the back of some of the most bitter of the controversies over the question of Negro emancipation. Madison Grant in his *Passing of the Great Race*—of which we feel sure Mr. Grant must be a member—has given us a typical exposition of this unscientific approach.

The real source of the modern idea of the innate inferiority of certain "races" is the work of the French Count Joseph de Gobineau (1816–22), *Essai sur l'inégalité des races humaines* (1853–5). It is essentially a plea for "national" history. He advocated especially the superiority of the so-called "Aryan races." The idea was carried to the most ridiculous lengths in the work of his countryman Lapouge, *L'Aryen* (1899), in which the "Aryans" were identified with the "Nordic race." In the beginning of the present century the East Prussian Gustav Kossinna took up the

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idea and applied it to pre-historic archaeology and thus made German pre-history a pre-eminently national science.¹ His object was to show that throughout the pre-historic ages advances in culture had been entirely due to peoples whom he identified with the Nordic, Germanic, or "Aryan" peoples, these terms being regarded as interchangeable, though including not merely Germans, but also Scandinavians. The "Aryan" cradle was located in the North-European forest about the Baltic and North Sea coasts.

This theory is scientifically quite untenable on many grounds. Thus, to take a single point, the earliest of the rough stone monuments (of which Stonehenge is a late and highly developed example, c 1700-1600 B.C.) go back, even in England, at least as far as 3000 B.C. The culture that they represent spread from the Mediterranean to the Iberian peninsula and thence through France unto Britain and beyond to North Germany and Scandinavia. Yet these monuments, involving high enterprise, considered design, and complex social organization, were produced by a people devoid of metal implements and quite certainly not of Nordic origin. The skulls from the early English burials associated with these monuments are, in fact, usually stated to be of Mediterranean type (pp. 144-5).

Nevertheless the Nordic theory speedily became very popular in Germany. It has been made the basis of propaganda in the pseudo-scientific writings of Houston Stewart Chamberlain and others in Germany, and of Madison Grant and others in America. Among its absurdities it is perhaps sufficient to mention that Jesus Christ and Dante

¹ The title of Kossinna's chief work is *German pre-History, a pre-eminently National Science* ("Die deutsche Vorgeschichte eine hervorragend nationale Wissenschaft"). Science become national is a surprising confession! The fact that the second edition is dated "on the day of general mobilization (1914)" tells its own story

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have been turned into "good Teutons." The "Nordic theory" has had a very great effect not only in serving as a basis for the "Aryan" doctrines upon which the Nazi regime is now being conducted, but also as the inspiring influence in a great deal of political agitation which claimed superiority for the "Nordic" in the discussion of legislation determining the recent revision of the immigration laws in the United States.

We shall presently have to expound the strange origin of this myth of an "Aryan race" (pp. 126-9), but on the general questions of the correlation of psychological characters and "race," we must say at once that there is at present simply no evidence worthy of being called scientific which is capable of demonstrating such a relation. Professor Karl Pearson, as the result of an examination of such data as he was able to obtain by his special methods of statistical study, has arrived at the conclusion that, so far as European population is concerned, it is not possible to demonstrate any correlation between "stock" and mental character. It may be that further investigation may show that this conclusion is erroneous. So far, practical difficulties have prevented the effective application of mental tests to "primitive" peoples.

Before leaving the subject of the history of the science of man we must say a word concerning the results of archaeological findings with reference to the modern European man. The very rapid progress of archaeology makes any estimate produced in such a work as this out of date before it is published. It is, however, evident that we do not know enough to speak with assurance, let alone with certainty, of the place of origin of either the prevalent *population*, or the prevalent Aryan *language* of Europe. The history of Europe's prevalent *culture* presents fewer difficulties

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As regards population, it can with safety only be said that the general streams of immigration have been north and west from Asia and from Africa. This has been the main trend of all of the three most characteristic types of European man, the Mediterranean (pp 144-5), the Eurasiatic (pp 149-50) and the Nordic (p 148). As regards the streams of cultural transmission, the main channels in historic time have obviously been the Northern and Western trends from the Roman and Byzantine Empire. As for pre-historic cultural streams, these have been so extremely complex and are still so much in dispute that general statements can hardly be ventured; but the main movement has been in the same direction as the historic.

The most distinctive European element which separates our continent from the rest of the world is perhaps linguistic. Man's progress from savagery to civilization is ultimately bound up with language. This is his instrument not only for social intercourse, but for the expression of abstract ideas—which is the essential psychic element that divides him from the beasts. The Aryan mode of speech has certainly been a real gift to Europe. Where did it come from, and who first spoke it?

The Aryan type of language has proved itself an instrument at once marvellously delicate and marvellously adaptable. It has shown a power to override tribal boundaries and to bind together diverse ethnic units as has no other element in the Western world. The archaeology of the Aryan languages has yielded more positive and apparently more permanent results than perhaps any other branch of archaeology. And yet we know neither where the Aryan tongue was first spoken nor by what kind of ethnic group it was first used, though we can nevertheless reconstruct the outlines of its original form with some confidence. The Aryan languages are possessed of an unusual flexibility, and it seems clear that the possession of

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linguistic instruments of this high type has been an important factor in the rise of the European region to world-supremacy. But remember that European world-supremacy is an affair only of the last four hundred years, and that many other factors besides either language or genetics are involved in it.

In view of the great historic and political importance of the Aryan languages and of the relative certainty of their history and of the extreme uncertainty of their ethnic associations, it is a treble misfortune that the meaning of the word *Aryan* should ever have been allowed to vary from its just linguistic association and have become linked with racial concepts (pp. 126-9).

CHAPTER III

THE PRINCIPLES OF HEREDITY AS APPLIED TO MAN

INVOLVED in the whole conception of race is the idea of heredity. The general phenomena of heredity seem obvious to us nowadays, though naturalists stressed them but little until the eighteenth century. Since the time of the appearance of the *Origin of Species* in the middle of the subsequent century (1859) the theme of heredity has occupied the centre of the biological field. Nevertheless in the forty years which followed the publication of the *Origin*, the only exact analyses of the phenomena of heredity were made by Gregor Mendel (1822–84) and published in 1866 and 1869. Mendel's work remained unnoticed until re-discovered in 1900. Since then the extension of our knowledge of the phenomena of heredity has been portentous. With 1900 we may be said to enter a new biological era.

The fundamental changes in our ideas introduced by this recent extension of our knowledge make it necessary to reconsider the race concept. In view of the extremely rapid advances in Genetics—as the study of the phenomena of heredity is now generally called—it is not surprising that the implications of the new knowledge have not been adequately incorporated into anthropological writings.

The fundamental doctrine of modern genetics is that the hereditary constitution in the biological sense—that is, what we owe to our ancestors, apart from our social heritage—consists of a large number (certainly several thousands) of discrete kinds of units of matter. These are called *genes*. Each gene is distinct from all others, and each has a definite location within a particular *chromo-*

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some, one of those microscopically visible cell-organs into which the nucleus of a cell resolves itself when dividing. These genes are living units in the sense that they are self-perpetuating and self-multiplying. When a cell divides, each single gene becomes two genes, one for each of the two daughter-cells.

The genes exert their effect on the processes of development. Usually each gene mainly affects one particular kind of character. For instance one will primarily affect eye-colour, another fertility, another stature, and so on. Obviously, however, a gene does not act in isolation. Its influence depends also on all the other genes present. The total gene-system, interacting with the totality of environmental conditions, has to be considered in each individual case.

When we say that a particular gene is responsible for a particular character, we are using a shorthand description. We merely mean that when two individuals differ in constitution with respect to this particular gene, they will show a difference with respect to this character. The mechanism of control is not taken into consideration and is still, in fact, hidden from us in most cases. Nevertheless for most practical purposes, this type of shorthand description is adequate and convenient. For instance we can safely continue to speak of "the gene for albinism," so long as we remember that such a phrase is only a shorthand label. A still more compressed formulation is sometimes used, by speaking of "the albino gene."

Each kind of gene may exist in a number of sub-types, technically called *allelomorphs*, which usually affect one and the same character in quantitatively different ways: for example, tall versus short stature in pea-plants, colour versus albinism in rabbits and other mammals (including man), large versus rudimentary wings in fruit-flies, etc. Only two of a series of *allelomorphs* can exist in a single individual.

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The laws of Mendel and their extension by later genetical work concern the transmission of genes and their sub-types from parent to offspring. In the great majority of higher animals and plants, each kind of gene is represented in double dose, one member of the pair being derived from the mother, the other from the father.¹ The two members of a pair may be alike or may differ in sub-type.

In all known species, the population found in nature contains two or more sub-types for many, perhaps for all, genes. Thus the allelomorph for white flower-colour is widespread in the wild population of many flowering plants, such as the bluebell, as well as its more normal partner for pigmented flowers.

Two sub-types often differ from each other, in one being what is called *recessive*, the other then being called *dominant*. This means that if the recessive gene exists side by side with the dominant, it exerts no visible effect on the appearance or behaviour of the individual. We only know that the recessive gene is there because the individual is capable of transmitting it to his descendants. This is the case, for instance, with human and animal albinism. The gene for albinism may be transmitted in a family for an indefinite number of generations without an albino child appearing. Visible albinism will only crop up if both parents carry the recessive gene. When this happens some of their offspring are likely to possess this gene in double dose. Only those will be albinos. *Per contra*, a type can remain apparently "pure" in all its visible manifestations for an indefinite number of generations and yet be "impure" in its constitution and contain recessive genes for a number of quite other characters. Appearance is no guarantee of constitution. We must accordingly make the fundamental

¹ There are exceptions in regard to the genes situated in the sex-determining chromosomes, but this need not concern us here

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distinction between the *phenotype* or visible appearance of an organism and its *genotype* or transmissible constitution.

There are certain genes which are neither dominant nor recessive, but have an intermediate effect when present together. The intermediate type can never breed true, but is always "impure." The most celebrated case is that of the Blue Andalusian type in fowls. Breeders found that they could not obtain a pure strain of this type. It was always throwing whites and blacks. Mendelian analysis disclosed the reason, for the "blue" is the intermediate hybrid product of a cross between pure black and pure white. It is for this reason that it can never breed true, however long selection be practised.

In discussing "purity" in the genetic sense it is useful to employ the terms *homozygous* and *heterozygous*. By homozygous we mean an individual or stock which in regard to one or more genes has both allelomorphs the same, or, to put it another way, a double dose of one kind of allelomorph. In a heterozygous type there is a single dose of each of two different allelomorphs. In the Andalusian fowl, the black and white strains are both homozygous, the black having a double dose of the black-determining allelomorph of the gene determining pigmentation, the white strain having a double dose of the white-determining allelomorph. The blue is heterozygous, with one dose of each. An albino, like any other recessive, is of necessity homozygous, having a double dose of the recessive albino gene. An individual showing a dominant character, on the other hand, may be genetically either homozygous or heterozygous.

These facts have most important implications for our purpose. To begin with, we have the process which is known as *segregation*. Thus, for instance, after the production of a number of Blue Andalusians by a cross

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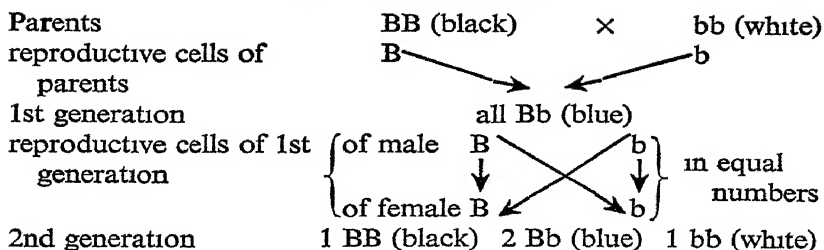
between the appropriate black and white strains of fowls, the mating of Blue Andalusians with each other produces not only Andalusian but also some whites and some blacks; and what is more, both the whites and the blacks will be homozygous or pure. There has been no blending, but a sorting out or, as it is technically called, a *segregation* of characters. Statistically there will appear 25 per cent pure white, 25 per cent. pure black, and 50 per cent. Andalusian. These last are again heterozygous and will continue to behave like their parents.

This segregation of characters is the result of the segregation of genes—the way genes are sorted out in the formation of the reproductive cells. Owing to an elaborate piece of cellular machinery which operates during this process, each reproductive cell comes to contain only one of each pair of allelomorphs present in the body of the parents. Thus the Andalusian fowl contains the “black” as well as the “white” allelomorphs of the gene for pigmentation: but its reproductive cells, whether eggs or sperms, each contain either a “black” or a “white” gene—never both and never neither. The types of gene do not blend like drops of coloured ink, but remain distinct, even though in their effects (as in the Blue Andalusian) they may combine.

The segregation of allelomorphic genes makes it equally likely that a “white”-bearing sperm will fertilize a “white”-bearing egg or a “black”-bearing egg; and so also with the “black”-bearing sperm. Thus results the 25 per cent., 50 per cent., 25 per cent., or 1 : 2 : 1 ratio observed in the offspring.

This may be made clear by a simple diagram. If B represent the gene for black, b that for white (allelomorphs are conveniently designated by variants of the same letter), then the history of the genes in the cross and its results may be written as follows:

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1 BB (black)
2 Bb (blue)
1 bb (white)

The same result occurs when two heterozygous dominants—e g two coloured rabbits carrying the gene for albinism—are bred together, save that here it is impossible to tell the “pure” (homozygous) from the “impure” (heterozygous) dominants by inspection, and the result will be on the average 3 coloured to 1 albino. But of these 3 coloured, only 1 will breed true, the other 2 will again throw albinos. Thus here only breeding tests can reveal the constitution, inspection is useless. If C represents the gene for colour and c that for albinism, the second generation will be composed of 25 per cent CC., and 50 per cent Cc, together making 75 per cent coloured, and 25 per cent cc, which will be albino.

The next important principle is that of the *independence of segregation* of different kinds of genes. To take one of Mendel's original crosses with the garden pea, yellow and green seed-colour are determined by one allelomorphic pair, and round and wrinkled seed-form by another. If a pea plant with yellow round seeds is crossed with another with green wrinkled seeds, the offspring will have yellow round seeds, since yellow and round are dominant. But what will happen when we breed from this “hybrid” generation? Will only the original parental combinations be adhered to, or will new combinations be formed? The latter is what actually happens. In addition to the original yellow round and green wrinkled types, the new generation will produce some plants with yellow wrinkled and others

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with green round seeds; and certain members of each type will be homozygous and breed true. The two pairs of genes segregate independently of each other.

It may help to put this example also in shorthand notation. If the original parents are YYRR and yyrr, Y being the gene for yellow, y its allelomorph for green, R the gene

Parents	YYRR	x	yyrr		
Reproductive cells	YR		yr		
First generation	Yy Rr	x	Yy Rr		
Reproductive cells	→ YR	Yr	yR	yr	
cells ↙	YR	YY RR	Yy Rr	YY RR	Yy Rr
	Yr	YY Rr	YY rr	Yy Rr	Yy rr
	yR	Yy RR	Yy Rr	yy RR	yy Rr
	yr	Yy Rr	Yy rr	yy Rr	yy rr

Offspring, 9 yellow round : 3 yellow wrinkled :
Second 3 green round : 1 green wrinkled .
Generation,



Yellow



Round

for round form and r its allelomorph for wrinkledness, then all the offspring in the first generation will be of constitution YyRr. In the next generation all possible combinations will occur, i.e. yellow and round (YYRR, YYRr, YyRR and YyRr); yellow and wrinkled (YYrr and Yyrr), green and round (yyRR and yyRr) and green and wrinkled (yyrr). The proportion of all those will be very close to

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certain average figures which are easily calculated, but we need not enter here into these details.

This result of the independent segregation of different genes is known as *recombination*. It is of great theoretical and practical importance. It means that if two more or less pure strains differing in a number of characters are crossed, all sorts of quite new types, different from anything seen in the original stock, will appear in the second and later generations. Of course the more numerous the genes in respect of which the races differ, the more numerous will be the new recombinations. In the simple case when only dominant and recessive characters are involved, the recombinations increase by power of 2. Thus when a single gene (one allelomorphic pair) is involved, the number of possible resultant types is 2^1 or 2, when two, 2^2 or 4, and so on. If the two types differ in regard to 10 genes, there are 2^{10} or 1024 possible recombinations; of these two are the parental and 1022 are new types. If the heterozygote constitutes an intermediate type, the recombinations increase by powers of 3 — 3, 9, 27, etc., instead of 2, 4, 8. The bearing of these facts on racial mixture is obvious. The thousands of genes in the human reproductive cells are thus able to play countless variations on the human theme.

Another important point is that by no means all characters are determined by genes with large or clear-cut effects. For instance, stature or weight in most animals is determined by a large group of genes, each exerting a small effect, and capable of reinforcing the influence of each other. Only rarely are such genes strictly dominant. The heterozygote is generally of the intermediate type. So if a large or giant strain is crossed with a small or dwarf strain from which it differs say with respect to four genes affecting size, the numerous recombinations will form a series ranging from the original giant to the original dwarf, through finely graded steps. Such cases are thus not a contradiction of

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the law of segregation, but a particular exemplification of it.

We may here recall some familiar facts of human heredity which remained mysterious until the Mendelian view was established, but now are readily explicable.

First, there is the well-known fact that apparently normal people, with a "clean" ancestry for several generations, may produce defective children such as deaf-mutes, albinos, or mental deficient. If the defects are of genetic origin, the explanation is that the character is recessive and that both the parents were carrying the recessive gene. This further explains why such defective recessive types appear more frequently in consanguineous marriages. The reason is that if a recessive gene exists in a given stock, it is obviously more likely to occur in another member of the same stock than in the population in general.

This implies the further conclusion, now well established, that inbreeding is not bad *per se*, but that it may have bad effects by bringing to light deleterious recessive characters. Inbreeding can indeed be used deliberately in plant and animal breeding to purge a stock of such harmful genes. (It must, however, be remembered that heredity cannot always be blamed for deaf-mutes or mental defects in a healthy stock. Both are sometimes due to infectious diseases of early childhood, and mental defect may be caused by birth injuries)

Another phenomenon illuminated by modern genetics is that of the striking differences which may and usually do occur between members of a single family. Two brothers or two sisters may present very striking differences in physique, intelligence, and temperament, in spite of their common parentage and common home environment. In some extreme cases, the offspring of a cross between a white man and a half-breed coloured woman have been

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fair and almost black respectively. In the light of what we have said, it will be realized that this fact, which was a mystery on older theories of inheritance, is just what is to be expected on Mendelian grounds. It is a result of recombination. The parents—as is to be expected in a genetically mixed stock such as that of practically all human ethnic groups—differ in a number of genes, for some of which also each is heterozygous. The reshuffling of genes produced by the chances of segregation and fertilization automatically brings about a number of recombinations.

Finally, a word must be said about the process of change in genes, known technically as *mutation*. We have seen that one type of gene may have several different sub-types or allelomorphs. The question at once arises how this differentiation has occurred. We do not know much about the physical reasons which make one allelomorph turn into another. What we do know is that such changes do occur, and that the occurrence is clear-cut. The gene is then as self-perpetuating in its new type as it was in its old. The actual process of change is called mutation. Usually mutation does not produce new genes, but new sub-types or allelomorphs of existing kinds of gene. A normal gene found in wild stock may mutate into a wholly new allelomorph, usually recessive, but a recessive may also mutate back to normal. Most of the mutations with obvious large effects found in the laboratory are deleterious to their possessors. This, however, is only to be expected, for the hereditary constitution is an elaborately interlocked mechanism, and random changes in such a mechanism are more likely to throw it out of gear than to improve it. None the less mutations do occur which are beneficial or may be so in certain environments or in combination with certain other genes. This is notably the case among those mutations with smaller effects, which are now being increasingly analysed.

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In animal species, a population from any one locality will not be uniform. It will present a certain degree of variability. Of this, some will be non-genetic, due to direct environmental and nutritional differences in the individuals, but some also will be due to actual differences in genetic composition between different individuals. Usually this genetic variability will be continuous, due to gene differences with slight and quantitative effects, so that some individuals will for instance be slightly darker, others slightly lighter, than the mean. If so, then there may be a selection in favour of such mutations or combinations as best suit the environment. Thus these favoured genes or combinations of genes, in part or entirely, come to form the hereditary constitution of the species.

This automatic favouring of some hereditary tendencies at the expense of others constitutes the process usually known as *Natural Selection*. Mutations form what we may call the raw material of evolution. It appears clear in the light of modern researches that Natural Selection constitutes the guiding mechanism. Mutations occur more or less at random, selection governs the direction along which evolution shall take place. The particular direction varies, of course, according to the species of organism and the circumstances in which it finds itself.

The chief biological rôle of sex appears to be to provide new combinations of characters on which selection may act. If ten new mutations occur in a species in a given time, then if the species is capable only of asexual reproduction, the total number of new types is ten. But if it is capable of sexual reproduction, all possible recombinations will be formed, the number of new types will be over 1,000, and many of these may be more favourable than any single mutant. In particular, the combination of several new favourable mutations will clearly be immensely facilitated by sexual reproduction.

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Modern experimental work makes it most unlikely that the so-called "inheritance of acquired characters"—i.e. the transmission to later generations of the direct effects of environment or of use or disuse upon the individual—has played any important part in evolution. For instance, the dark skin of human stocks inhabiting hot climates does *not* appear to be due to the cumulative transmission of the tanning effect of the sun, but to the progressive selection of the darker types in a mixed population, owing to the advantage they enjoy over fair types in such an environment.

Another point which is of the utmost importance, in regard both to the general theory of heredity and to the discussion of so-called "racial" problems in man, is the alteration of the expression of genes by environmental changes.

To modern biology a "character" is not a unit, nor is it unchangeable, nor is it in the strict sense of the word inherited. It is the expression of the action of a certain combination of genes (which alone are truly inherited) in a certain environment. You can alter the character either by altering the gene in the constitution or by altering the conditions of the environment.

There are, it is true, numerous characters which are relatively unaffected by any environmental changes compatible with normal existence. In man, black hair and abnormally short fingers (brachydactyly) are examples of this. But even in such characters, careful analysis generally shows some slight variation in the degree of expression under some conditions. With other characters, however, the expression may alter radically with the environment. There is the classical case of a particular red-flowered variety of the Chinese primrose (*Primula sinensis*), which is only red-flowered in ordinary conditions, and produces white flowers at high temperatures. (There exists another variety which produces white flowers under all conditions

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of temperature.) Or there is the equally striking case of abnormal abdomen in fruit-flies. This, too, is a character dependent upon a mutation in a single gene. When fully expressed, it causes the abdomen to be irregular in form and in colour. But it is only manifested in moist conditions: in dry conditions, the flies are quite normal in appearance. A pure strain of the abnormal variety may be kept of normal appearance for generations by controlling the humidity. Immediately, however, that moist conditions are restored, all the new-hatched flies appear of abnormal type.

Besides such extreme cases there are a great number in which the expression of a gene can be moderately altered by altering the environment. Human pigmentation, especially of medium fair types, is a good example. The same individual who would be almost white if rarely exposed to the sun can become a rich brown colour under certain conditions of exposure.

Human stature is another case in point. As with other animals, various degrees of stunting can be produced by various degrees of underfeeding and other unfavourable conditions (disease, lack of exercise or sunlight, etc.). The effect will also vary according to the time at which the unfavourable conditions were operative. As shown by recent experiments in which the growth of healthy boys was still further increased by the addition of milk to an abundant and varied diet, "underfeeding" is a relative term, and apparently normal conditions may not provide the optimum.

The last example provides an excellent example of the interaction of genetic and environmental factors, and is also important from the standpoint of so-called "racial" differences. The fact that stature can be altered by feeding and other environmental conditions does not mean that it cannot also be altered by change in genetic make-up or

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vice versa. To believe that one alternative excludes the other (as many popular writers appear to do) is to fall into an elementary logical and biological error

This introduction has now prepared us to embark upon a discussion of the direct bearing of genetics upon the problem of "race" in man. We may begin by returning to the previous example of stature

As a matter of fact, marked genetic differences in stature do occur in man. No amount of extra feeding could raise the stature of a pigmy to that of a normal European. The average height of Scots is considerably higher than that of, say, southern Frenchmen, and the difference is almost wholly due to differences in genetic make-up. The Scotch possess genes which make for height, the pigmies genes which keep them small. It is nevertheless doubtless true that the height of both peoples could be considerably modified by feeding and other environmental conditions ¹

This will show the complexity of even such an apparently simple question as that of human stature. Let us illustrate this complexity by two particular problems in this field. In the first place, it is known that the average stature of Britons (and of other nations also) has increased quite definitely within the last half-century or so. Does this mean an alteration in the character of the "race" (national stock), as has been frequently asserted? In the second place, it is a fact that the average stature of different social-economic classes in Britain (and again in other nations) is different, being highest in the upper social classes. Is this due to the upper classes containing genetically different stock from the others?

¹ For further discussion of the interaction of genetic and environmental factors, and its bearing upon racial problems, the reader is referred to L. T. Hogben, *Nature and Nurture* (London, 1933)

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With regard to the first question, concerning the increase in average national stature, the answer is fairly clear. The increase is due in the main to better food and better conditions of life, and not to any permanent change in the constitution. In other words, the national stock has not altered appreciably. Put it back in the old conditions, and it would once more shrink to its old stature, as our red-flowered Chinese primrose would produce white flowers on being transferred to a hothouse.

The second question is harder to answer. It is clear that much of the difference must be due to the better conditions enjoyed by the children of the richer classes. But it is quite possible that there also exists an average genetic difference between different classes, e.g. there may be more genetically tall stock in the upper classes, derived from the Norman invaders, more genetically short stock in the lower classes, derived from the early Mediterranean-type inhabitants of Britain. Or selection may have been at work favouring tall types in the upper classes (e.g. by sexual selection of tall women) or short types in the proletariat (e.g. short types may be better suited to town life or factory conditions, and therefore be favoured in an urban-industrial civilization). It is probable that both sets of causes, genetic and environmental, are at work. At the moment, however, it is impossible to evaluate the exact share of one or the other in producing the observed result.

What is true of stature applies with far greater force to psychological characters—of intelligence, special aptitude, temperament, and character. In the first place, such characters are far more susceptible to changes in environment (here of course predominatingly social environment) than are physical characters. Secondly, the social environment shows a greater range of difference than the physical environment. High innate mathematical ability would be unable to express itself in palaeolithic society or among

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present-day savages The most consummate artistic gifts would find little scope on a desert island. The temperament which gives its possessor the capacity for readily going into a trance or seeing visions would be liable in industrial Britain to land its possessor in an asylum or to saddle him with neurotic illness in various American and Asiatic tribes it will favour his attainment of power and prestige as a medicine man or shaman A war-like temperament which would have expressed itself adequately in the early days of Jewish history would have been at a discount during the Captivity The same capacities, inventiveness, and initiative, which would be expressed to the full in a pioneer country tend to remain latent in conditions of unskilled factory labour. Certain economic and social conditions favour the expression of the tendencies to individualism and self-assertion, other conditions favour the reverse: we can think of early industrialism on the one hand, the Authoritarian State on the other.

In general, the expression of temperamental tendencies seems to be determined mostly in the very early years of life, so that changes affecting the atmosphere of the home and the theories and practice of children's upbringing will have large effects.

Similarly the sweeping assertion often made as regards the differences of women's aptitudes and character from men's undoubtedly refer in the main to differences brought about by differences in the upbringing of boys and girls and by the different social and economic status of the sexes. An amusing example is to hand in the exclamation of the third-century Greek gossip-writer Athenaeus, "Who ever heard of a woman cook?"

While it is clear that individuals endowed with exceptional combinations of genes will often rise superior to all obstacles, it is equally clear that the quantity of innate talent which a person possesses depends for its realization

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and expression upon adequate facilities for its cultivation; and that these again depend upon environmental factors such as financial resources, social outlook, and existing educational systems. An obvious reason why children from the upper social classes obtain proportionately more scholarships than those from the lower classes is because they have better educational opportunities provided for them, whether they are better endowed by heredity or not.

The bearing of such facts upon problems of race and nationality is evident. With the best will in the world it is, in the present state of knowledge, impossible to disentangle the genetic from the environmental factors in matters of "racial traits," "national character," and the like. Such phrases are glibly used. In point of fact they are all but meaningless, since they are not properly definable. Further, in so far as they are capable of definition, the common presupposition that they are entirely or mainly of a permanent or genetic nature is unwarranted.

Do not let us be misunderstood. It is clear that there must exist innate genetic differences between human groups in regard to intelligence, temperament, and other psychological traits. There do exist genetic differences in physical characters: there is every reason to believe that similar differences in psychical characters also exist. In the first place, however, this need not mean that the mental differences are highly correlated with the physical—that a black skin, for instance, automatically connotes a tendency towards low intelligence or irresponsible temperament. Secondly, the mental differences must be expected to be like the physical in being mere matters of general averages and proportions of types—there will be in every social class or ethnic group a great quantitative range and a great qualitative diversity of mental characters, and different groups will very largely overlap with each other. Finally, and perhaps most important of all, there exist as yet no means for

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assigning the shares of genetic constitution and of environment in producing the observed differences of type.

All the evidence we possess goes to show that the expression of such mental characters is dependent on the social environment to a very high degree. Let us first take so-called "national character." There was a time when England was called "merry"; during the nineteenth century that epithet was not applicable. In Elizabethan times the English were among the most musical of the European nations: the reverse is generally held to have been true in late Victorian times. Again, as Hume shrewdly notes in his *Essay on National Characters*, the Spaniards were in earlier times restless and war-like whereas in his day and the period immediately preceding it the reverse was the case.

Were these changes due to alteration in the genes, or to such influences as the difference between the social atmosphere of the Renaissance and that of early industrialism? The social answer is here far the more likely. In other cases it is manifestly the correct one. For instance, in Carlyle's time, the German "national character" was supposed to be peaceable, philosophic, musical, and individualist. After the Franco-Prussian War it became arrogant and militarist. Now we are witnessing the blossoming of tendencies to state-worship, mass-enthusiasm, and the like, which we are once more assured are inherent in it.

But it would be inconceivable on any biological theory whatsoever, let alone on that of modern genetics, to believe that the inherent constitution of the German people could change so rapidly. We are therefore driven to believe that the change, where it has not been merely an apparent one, due to the bias of the recorder, has been brought about by changes in social atmosphere and institutions.

Let us now examine the problem from a different angle, "racial" rather than "national." It is asserted vocifer-

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ously in certain quarters that the Nordic "race" is gifted above all others with initiative and originality, and that all the great advances in civilization have been due to the "Nordic genius"

What are the facts? The fundamental discoveries on which civilization is built are the art of writing, agriculture, the wheel, and building in stone. All these appear to have originated in the near East, among peoples who by no stretch of imagination could be called Nordic or presumed to have but the faintest admixture of Nordic or even Proto-Nordic genes.

In the classical period, Aristotle (*Politics*, VII) gave what appeared to that great thinker cogent reasons for thinking that the Nordic barbarians as well as the Asiatic peoples were inherently incapable of rising to the level of Greek achievements. The inhabitants of northern climates, he says, though endowed with plenty of spirit, are wanting in intelligence and skill, while the reverse is true of the Asiatics. The Greeks, on the other hand, are endowed with both sets of qualities. The attitude of the Roman invaders of this island towards the ancient Britons must have been very similar to that of the British and Dutch invaders of South and Central Africa towards the Bantu. We have as yet no means of learning whether this latter attitude will be any more justified than that of the dominant peoples of classical times to the barbarian tribes which they subdued.

When we come to matters of detail, facts are equally hostile to the myth of Nordic superiority. For instance, exploration certainly demands initiative. But far from Nordic types being pre-eminent in that domain, Havelock Ellis (*A Study of British Genius*, 1928) has shown that hardly any of the great British explorers were fair-haired or of Nordic type.

The Nordic myth has many upholders in the United

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States; but, as Hrdlička has shown (*The Old Americans*), the early colonists were mostly round-headed, and dark or medium in complexion (pp 209-10).

The orthodox Nazi view is that Germany owes her chief achievements to the "Aryan" or Nordic elements in her population. As we shall see later, the Nordic type, besides being fair and tall, is long-headed. But as Weidenreich has shown, the greatest Germans, including Beethoven, Kant, Schiller, Leibnitz, and Goethe, were all moderately or extremely round-headed (cephalic indices 84 to 92).¹ Already the difficulties in the way of a simple Nordic explanation are apparent to the Nazi "intelligentsia" and they are now introducing such terms as "Nordic-Dinaric" and "Baltic-Nordic" to denote certain very numerous Germans of obviously mixed type—a procedure which at once robs the "pure race" concept of its meaning. The nationalist German anthropologist, Kossinna, in his *Ursprung der Germanen* (1928) says that "Nordic souls may often be combined with un-Nordic bodies, and a decidedly un-Nordic soul may lurk in a perfectly good Nordic body"! This may be a convenient method of disposing of certain awkward facts, but it assuredly has no point of contact with biological science: the implication that the genes responsible for "the soul" segregate *en bloc* from those responsible for "the body" is more medieval than Mendelian. There is even a school of Nazi thought which would bring the Turks and the Japanese into the Nordic fold! Such suggestions are merely ridiculous on scientific grounds. The fact that they can be seriously made shows that the motive behind them is not scientific but emotional.

One final example, and we have done. In so far as the Jews constitute a "racial type," they should be long-headed, since this is a distinctive Semite character. But

¹ Franz Weidenreich, *Rasse und Körperbau*, 1927.

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Einstein is, like a large proportion of Jews, extremely broad-headed. The Jewish problem is a particularly illuminating one. The ancient Jews were formed as the result of crossing between several groups of markedly distinct type. Later there has always been a certain amount of crossing between the Jews and the non-Jewish inhabitants of the countries where they have dwelt, striking examples being the black Jews of Northern Africa and the famous historical case of the Chazars of South Russia. The result is that the Jews of different areas are not genetically equivalent, and that in each country the Jewish population overlaps with the non-Jewish in every conceivable character. The word *Jew* is valid more as a socio-religious or pseudo-national¹ description than as an ethnic term in any genetic sense. Many "Jewish" characteristics are without doubt much more the product of Jewish tradition and upbringing, and especially of reaction against external pressure and persecution, than of heredity.

Man, as we have seen, is unique in the extent to which the expression of the characteristics most important to him as a species—intelligence, mentality, and temperament—can be influenced by the character of his environment. He is also unique in respect of his purely biological variation. The nature of such biological variation we must briefly consider.

In most wild species of animals, especially those with wide distribution, two types of genetic phenomena are found. In the first place, a population from any one locality presents relatively little range of variability. Of this, some is non-genetic, due to environmental and nutritional differences, but a large amount is due to differences

¹ The term pseudo-national is used for want of a better. It is not intended to imply that the Jews form a nation in the accepted sense of the word.

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in genetic composition between different individuals. Usually this genetic variability is continuous, due to gene-differences with slight and quantitative effects, so that some individuals are slightly darker, others slightly lighter than the mean, some slightly bigger, others slightly smaller, and so on. Occasionally, however, larger or more definite individual differences occur, as for instance between the blue and the white types of Arctic fox, or between the normal and so-called bridled variety of the guillemot, which latter has a white spectacle mark round the eye. Such differences usually depend on differences in very few genes, and often involve only one.

Besides differences of this kind, there are differences distinguishing populations from different localities. These are often quite marked, and constitute the diagnostic characters of "geographical races," or as they are now usually and more satisfactorily called, *sub-species*. Well-marked sub-species may be connected with each other by every gradation, or they may be sharply distinct. Gradation is usually found when the range of the two is continuous, discontinuity when the ranges are isolated. The latter is most clearly manifested in island races, for instance the St. Kilda wren, or the British pied wagtail.

A third kind of variation may sometimes be recognized, as when markedly different sub-species (or mutually fertile species) have overlapping ranges. Then, while the two types present constant and characteristic differences over most of the ranges along the region of overlap, individuals are found with every possible combination of these characters. Classical examples of this are the Eastern and Western flickers (woodpeckers) of North America, and the hoodie and carrion crows of Northern Europe. This effect seems to be produced when considerable differentiation has taken place in the two types while isolated, and when after this they extend their ranges so as to meet.

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Interbreeding then produces every variety of Mendelian recombination. This type of variation, due to the wholesale crossing of distinct and differentiated types, is much rarer in animals than the geographical variation due to the divergent differentiation of groups wholly or largely isolated from each other geographically.

In man, conditions are quite different. In this, as in numerous other respects, man is a unique animal. In the first place, his tendency to migrate from one more or less permanent habitat to another¹ is much stronger than in any other animal and has become progressively more manifested in the later stages of his history. In the second place, for reasons which are not wholly clear, physical differentiation of local types has been able to go much farther than in almost any other wild species without leading to the development of mutual sterility—i.e. to fully differentiated species, sterile *inter se*. An African pigmy, a Chinese, and a typical Scandinavian Nordic, in spite of their striking differences, are mutually fertile.

The result is that crossing of types with the production of much variation by recombination is incomparably more frequent in man than in any other species. This crossing has occurred between the major as well as the minor subdivisions of man, between groups that show large physical differences as well as between those that approximate in type. The great majority of native Africans, the reader may be surprised to learn, are not pure negroes, but have an admixture of Caucasian genes from crosses with Hamitic stocks. India is more of a racial melting-pot than the United States. Mongolian invasions from the East have left their physical traces in Eastern Europe. There is a gradient of increasing concentration of Mongol genes, from Prussia eastward across European Russia into Central

¹ As contrasted with the *seasonal* migration found, e.g. in birds, or the *reproductive* migration of various fish

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Asia. How the subdivisions of man may have originated, and what names should be applied to them, we will consider in the next chapter. But however they originated and whatever degree of difference they may show, they have been intercrossing for tens of thousands of years, and this fact has had various important results.

On simple Mendelian principles, the first result of a cross between groups differing in average physical type will be to increase variability by producing a large number of hitherto non-existent recombinations, quite different from either of the original types or from the intermediate between them.

Next, it should be remembered that after crossing, selection may play a very important rôle. For instance, it appears that after the irruption of light-skinned conquerors from temperate latitudes into more tropical areas inhabited by darker-skinned peoples, natural selection has seen to it that combinations with darker skins survive while those with fair skin tend to die out.¹ This seems to have been the case for instance in Greece and in India. In India especially, the social selection brought about via the caste system seems to have exerted pressure for the retention in the highest castes of the general features of the conquering group—"Aryan" as they used to be called and perhaps rightly in that particular land (see p. 124-5)—but there seems little doubt that the genes for these are now associated with a different set of pigmentation-genes from those present in the original invaders. Similarly in Greece to-day, the average distribution of genes and the most frequent types of gene-combination must be very different not only from those found either in the Achaeans or in the indigenous

¹ This is so even when there has been counter-selection of a social nature against dark skin, e.g. in the higher castes of India. These are on the average much lighter in skin-colour than the lower castes, but are clearly darker than the original stock from which they trace descent.

Pelasgian population before the irruption of the former in the second millennium B.C., but also from those characteristic of the mixed population in early classical times.

It must further be emphasized that, after crossing, the various gene-combinations will, in the absence of selection, automatically maintain themselves in proportions which depend on the proportions of the different genes originally contributed to the cross.¹ There will not be a uniform mixed type, but the same general tendency to form recombinations will occur, generation after generation. Those who have been to Sicily know how types immediately classifiable as "Greek," "Moorish," and "Norman," and those with certain negroid characters, still crop up strikingly in the more mixed general population after centuries of crossing. The same phenomenon occurs in Britain, where we still find men of well-marked Mediterranean type, dark and small and swarthy. In Germany too men with dark and fair hair, round and long head, tall and stumpy stature, regularly recur as segregation-types from the mixture of Nordic, Eurasiatic (Alpine), and the numerous other stocks which constitute the general population. There is no sign of a tendency towards a uniform blend. An excellent example of this is given by the two hundred inhabitants of Pitcairn Island, all descended since 1788 from a cross between Tahitians and the British-born mutineers of the *Bounty*. These have recently been investigated for the American Museum. It was found that the population comprises a large number of recombinations, ranging from predominantly Tahitian to predominantly European, although no pure British or pure Tahitian types now exist. It is an interesting fact that the language spoken is also composite: in this case, however, degenerate English pre-

¹ This can be established as a direct consequence of neo-Mendelian theory. See Hogben, *Genetic Principles in Medicine and Social Science*, p. 148.

dominates, and in addition to Tahitian elements, words coined on Pitcairn itself (or, possibly, modified slang or obsolete English words) are found.

In addition to the variation produced by the crossing of already differentiated groups, which in man thus appears to be basic and not merely of the secondary importance that it assumes in other species, the general variability inherent in most animal populations is also to be found in *Homo sapiens*. For instance, some, at all events, of the variation in stature, proportions, pigmentation, intelligence, etc., which are to be found in all human groups must be ascribed to this factor. We may stress the fact that the main types of body-build and temperament recur in all ethnic groups, black, white, brown, or yellow.

It will thus be clear that the picture of the hereditary constitution of human groups which can now be drawn in the light of modern genetics is very different from any which could be framed in the pre-Mendelian era. Populations differ from each other with respect to the genes which they possess. Sometimes certain genes are wholly absent from a group—e.g. that for light eye-colour among Central African tribes, or for frizzy hair among the Eskimo. Most frequently, however, the difference is a quantitative one, in regard to the proportions of genes present and in the frequency of certain main types of gene-combinations. This is eminently characteristic of the populations of Western Europe.

Crossing between moderately or strikingly differentiated types is frequent as the aftermath of large-scale migration and gives rise to many previously unrealized gene-combinations. Infiltrative individual migration also takes place very frequently and leads to the steady diffusion of genes from one region to another. There is no such thing as blending, causing gene-recombinations to disappear gradually after crossing. In the absence of selection the various

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types of gene-combination will tend to recur in the same proportion, generation after generation.

It follows that practically all human groups are of decidedly mixed origin. Within any one group we should therefore expect the variation due to recombination to be great. This last point is of great importance. The expectation of the anthropologist of the Darwinian era, when the *a priori* idea of blending inheritance was in fashion, was of groups with well-marked characteristics, and a small range of variation chiefly affecting quantitative characters. The expectation of the Mendelian geneticist, knowing the facts of inheritance and the migratory habits of man, is of groups possessing a large range of variation, often concerned with striking characters of a qualitative nature as well as with quantitative ones; such groups can only be distinguished from each other by statistical methods. In such groups the *mean values* for characters, though still useful, no longer have the same theoretical importance. The *range of variation* of characters is of far greater practical importance, as is also the range of qualitatively different recombination-types. The two resultant "racial" or ethnic concepts are fundamentally dissimilar.

To these considerations derived from the modern study of inheritance may be added others due to the historical progress of ethnology. The modern outlook had its beginnings in the Renaissance. In its growth, the exploration of the planet, first geographical and then scientific, went hand in hand with the liberation of thought and the transformation of social and economic structure. In the earliest part of this modern period, the voyages of the great explorers and of the traders and colonizers who succeeded them brought home to man a new realization of the variety of the human race and the marked distinction between its types. The red man of the New World, the black man of Africa, the yellow man of the far East, the brown man of

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the East Indies—it was the *differences* between human types which impressed themselves upon general thought.

The patient labours of anthropological science during the last hundred years or so, however, have given us a wholly different picture. The different main types exist, but they are vaguer and less well-defined than was at first thought. Within each main type there are geographical trends of variation and there are connecting links even between the most distinct major types. Quite apart from the results of very recent crossings, almost every gradation exists between the Negro and the European along several different lines, via Hamite, Semite, and Mediterranean (pp. 144–8); every gradation exists between the white man and the yellow, through East Central Europe, across Russia, to Mongolia and China (pp. 180–2); every gradation exists between the yellow man and the already mixed dark brown Asiatic. Even among the Eskimo and the Pigmyes we find evidence of crossing with other types. The same process, of course, is continuing to-day and at an increasing rate. New links, often along new racial lines, are yearly being forged between Negro and white in countries like the United States, Brazil, Portugal, and Africa; new links between yellow and white and between brown and white in various parts of the world; new links between yellow and brown all over the East.

We can thus no longer think of common ancestry, a single original stock, as the essential badge of a “race.” What residuum of truth there is in this idea is purely quantitative. Two Englishmen, for instance, are almost certain to have more ancestors in common than an Englishman and a Negro. For the sharply-defined qualitative notion of common ancestry we must substitute the statistical idea of the probable number of common ancestors which two members of a group may be expected to share in going back a certain period of time. Being quantitative and statistical

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this concept cannot provide any sharp definition of race, nor do justice to the results of recombination. If, however, concrete values for the probability could be obtained for various groups (which would be a matter of great practical difficulty), it would provide a "co-efficient of common ancestry" which could serve as the only possible measure of their biological relationship.

The result is that the popular and scientific views of "race" no longer coincide. The word "race," as applied scientifically to human groupings; has lost any sharpness of meaning. To-day it is hardly definable in scientific terms, except as an abstract concept which *may*, under certain conditions, very different from those now prevalent, have been realized approximately in the past, and *might*, under certain other but equally different conditions, be realized in the distant future.

In spite of the work of the geneticist and anthropologist there is still a lamentable confusion between the ideas of *race*, *culture*, and *nation*. In this respect anthropologists themselves have not been blameless, and therefore the deplorable amount of loose thinking on the part of writers, politicians, and the general public is not surprising. In the circumstances, it is very desirable that the term *race* as applied to human groups should be dropped from the vocabulary of science. Its employment as a scientific term had a dual origin. In part, it represents merely the taking over of a popular term, in part the attempt to apply the biological concept of "variety" or "geographical race" to man. But the popular term is so loose that it turns out to be unworkable, and the scientific analysis of human populations shows that the variation of man has taken place on lines quite different from those characteristic of other animals. In other animals, the term *sub-species* has been substituted for "race." ~~In man, migration and crossing have produced such a fluid state of affairs that~~

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no such clear-cut term, as applied to existing conditions, is permissible. What we observe is the relative isolation of groups, their migration and their crossing. In what follows the word *race* will be deliberately avoided, and the term (*ethnic*) *group* or *people* employed for all general purposes.

Scientifically, there are only two methods of treatment which can be used for the genetic definition of human groups. One is to define them by means of the characters which they exhibit, the other to define them by means of the genes which they contain. In both cases the procedure must be primarily quantitative. In any group, certain characters or genes may be totally absent, and when this is so we can make a qualitative distinction. But usually the distinction will be quantitative. The characters or genes which are present will be present in different proportions in different groups. Their most frequent combinations will also differ from one group to the next. It is only by means of this quantitative difference in representation that in the main we can hope to define the difference between one group and another.

The method of characters and the method of genes differ in their scientific value and in their practicability. It is much easier to attempt a classification in terms of characters, and indeed this is the only method that is immediately practicable (as well as a necessary first step towards the classification in terms of genes).

But it is less satisfactory from the scientific point of view. This is partly because apparently similar characters may be determined by different genes, and conversely because the same gene in combination with different constellations of other genes may produce very different characters. It is also less satisfactory because a character is always the result of an interaction between constitution and environment. To disentangle the genetically unimportant effects of environment from the genetically essential action of genes is

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difficult in all organisms and especially so in man, where the social and cultural environment—unique characters of the human species—play predominant parts. Until we have invented a method for distinguishing the effects of social environment from those of genetic constitution, we shall be wholly unable to say anything of the least scientific value on such vital topics as the possible genetic differences in intelligence, initiative, and aptitude which may distinguish different human groups

Having thus cleared the ground for further discussion, we may proceed to consider the concrete phenomena of the apparently genetic differences between different groups, as they actually occur in man.

CHAPTER IV

BASES OF ETHNIC CLASSIFICATION

THE anthropologist, like the zoologist or botanist, is confronted by the need for classification. Proper classification and nomenclature are the first steps for reducing knowledge of nature to order and for systematizing the chaos of the available material.

Classification may be purely arbitrary, a mere system of pigeon-holing by characters chosen for the sake of their superficial convenience. Or it may be rational, the pigeon-holing based on characteristics which are regarded as fundamental instead of trivial or accidental (for instance crystal-structure in minerals, as opposed to colour). Or it may aim at being truly natural, and attempt pigeon-holing on the basis of relationship.

This last method underlies zoological and botanical classification. Individuals are grouped into species, species into genera, genera into families, and families into higher groups, on estimates of the degree of their evolutionary relationship. The idea of common ancestry underlies the system. The species of a single genus are presumed to have diverged from a group of common ancestors, those of a related genus from another group of common ancestors, and the two ancestral groups themselves to have had a common origin further back in time.

This is not the place to discuss the minor modifications of this idea which have been brought about by modern discoveries in palaeontology and genetics. It is sufficient to say that it is still the dominant idea in biological classification, and that a well-executed classification based on this principle will undoubtedly represent with fair

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accuracy the evolutionary relationships of the groups classified.

It was thus natural and indeed inevitable that a similar method based on similar postulates should have been attempted in classifying human beings. The idea of progressive evolutionary divergence was implicit in all the systems of ethnic classification proposed during the later nineteenth century, and the idea of common ancestry still underlies the vague and almost mystical concept of "race."

Man, however, is unique among species of animals in the degree to which crossing between already differentiated groups and types has taken place. Accordingly in man the convergence of evolutionary lines is quite as frequent as their divergence, and multiple ancestry is at least as important as common ancestry in considering the nature and origin of any group.

This, however, has not yet been sufficiently realized. Even where lip-service is rendered to the idea of mixture, the terms employed (such as "race" itself) carry far-reaching implications of a contrary nature. At the close of this chapter we shall attempt to sum up our ideas of human classification and the history of the ethnic groups of mankind, in the light of this fundamental difference between man and the lower animals. Meanwhile we must begin by discussing the methods adopted for a primarily descriptive classification of man, a rational and convenient pigeon-holing of human types.

There are, however, one or two general points to be borne in mind. First of all, the concept of species has lost all the quality of immutability originally postulated by Linnaeus. As a result of Darwin's work, the idea of change has supplanted that of changelessness in regard to all biological groups. Secondly, existing man constitutes only a single species, between all members of which fertile inter-breeding is possible. Thirdly, although there now

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exists only a single human species—*Homo sapiens*—this species presents a remarkably large degree of variation in physical characters—uniquely large as compared with animals, if domesticated forms be excluded. Fourthly, crossing of different human types and groups has always been widespread

Thus in the majority of groups of any size, and especially within one of national status, a considerable number of main physical types will be present. With them will be found numerous intermediate types and a proportion of widely aberrant types. In the former the appearance of holding a position between two contrasting types is not generally due to the blending of two discrete characters into a truly intermediate form. It more commonly arises from the combination in the one individual of contrasting characters derived from two or more of the main types. In Mendelian terminology, they are recombinations (pp. 69–71)—compound rather than truly intermediate. Examples of such “intermediate” types may be seen in Devon and Cornwall where individuals will be found to combine light eyes and dark hair, characters derived from the fair type from one side of the border and the dark type from the other. A similar combination of light eyes and dark hair is frequent in the south and east of Ireland. Such compound types are, however, so extremely common that they must come within every reader’s experience.

Finally, after crossing, isolation combined with natural selection in relation to local environmental conditions may produce a certain stability in a mixed group, and differentiate it from other human groups. Thus, if we employ the race concept in such cases, race can be regarded as a *terminus ad quem* just as much as in its usual connotation as a *terminus a quo*, in terms of the future as much as in those of the past.

With these considerations in mind let us turn to the

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criteria of ethnic grouping. The first prerequisites are characters which are obvious and easily accessible, if possible measurable, with a predominantly genetic basis, and little susceptible of environmental modification.

Of the characters which are currently used by anthropologists as a basis of classification, mention will be made here only of the more important. These are (i) hair-form and hair-colour, (ii) skin-colour; (iii) eye-colour and eye-form; (iv) stature; (v) head-form; (vi) nasal form; (vii) physiological and psychological characters; (viii) blood-groups.

(i) *Hair-form and hair-colour*

One of the most convenient characters for purposes of classification is the hair. Three characteristic types of hair are recognized, though numerous intermediate conditions may occur. These three types are:

(1) *Leiotrichy*. The condition of straight lank hair, hanging straight down, as among the Chinese and certain other yellow-skinned peoples of Asia, and among the Eskimo

(2) *Cymotrichy*. Smooth but wavy or curly hair, characteristic of many peoples of Western Asia, Europe, North-eastern Africa, India, Australia.

(3) *Ulotrichy*: Woolly or frizzy hair as in most Negroes; there is a considerable range of variation from the long hair of Papuans and Melanesians to the shorter hair of the Negroes and the yet shorter tightly curled hair of the Bushmen.

These differences in general appearance of the hair are due to a difference in form of the individual hairs. Straight hair is round in section. Woolly hair is a narrow oval in section. Wavy or curly hair has a section intermediate in form. Almost everywhere outside Europe and in many parts of Europe itself, the normal hair-coloration is black,

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although it may have a brown or reddish tinge. Red hair is found sporadically with more or less frequency all over Europe and Western Asia. It is specially common among Welsh, Irish, Scottish Highlanders, Jews, and Finns. Tacitus thought it to be the characteristic hair colour of the Germans (*see* p. 34). It is distinctly rare, however, among modern Germans, except those with Jewish ancestry.

(11) *Skin-colour*

The most striking feature in popular estimation of physical differences is undoubtedly the colour of the skin. Although much stress was at one time laid on pigmentation in differentiating the major human types, less importance is now attached to this character. The diminished stress laid by ethnologists on skin-colour is partly owing to the difficulty of observing and recording the finer shades of distinction, but even more because of its being evidently adaptive in relation to climate. A broad and convenient classification of skin-colour is as follows:

- (1) *Leucoderms*, or white-skinned (Caucasian)¹ peoples,
- (2) *Xanthoderms*, or yellow-skinned peoples;
- (3) *Melanoderms*, or black-skinned peoples.

Each of these terms covers a very wide range. The white-skinned peoples, even within Europe, vary from the pink-white common in the north to the olive, warm yellows or tawny and light browns usual in the south. Even in Africa no one is actually black, and few peoples approximate to real blackness. Any such colour scheme, therefore, must be treated as merely a convenient loose framework; it must not be regarded as a system of rigid categories, and it is descriptive only, not interpretative. It does not neces-

¹ The term Caucasian in ethnology must not be linked with the geographical region which it suggests. It was originally employed as a designation for the European Leucoderms and has been extended to include peoples who are supposed to be more or less allied to them.

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sarily show genetic affinity for instance the equally pigmented African Negro and Australian aborigine are in no way nearer to each other than either is to the white or yellow peoples.

(iii) *Eye-colour and eye-form*

Eye-colour follows, in a general way, the degree of pigmentation of skin and hair. Nevertheless cases are not rare of blonds with dark eyes. Brunets with grey eyes also occur, sometimes in groups, as in the islands of Malta. Brunets with blue eyes are rarer.

The pigment of the iris has the same protective function as that of the skin. The eyes of fair Europeans and fair Asiatics are thus generally less protected from the destructive ultra-violet rays of the sun in the Tropics and sub-Tropics.

The back of the iris always contains a purple pigment, except in albinos. The characteristic colour of the eye is provided by the pigment in front of this layer. A pure blue eye indicates that the anterior part of the iris is devoid of pigment, the colour being provided by the deeper pigment showing through. Genetically, such pure blue eyes are in general recessive to more heavily pigmented eyes. But the details of the genetics of eye-pigmentation are complex.

The orifice of the eye, or palpebral fissure, is normally horizontal and full, though in Southern Europe, North Africa, and the Nearer East the opening is often almond-shaped. Typically among the yellow-skinned Asiatics the fissure is oblique, the outer angle being higher than the inner, while a fold of skin, the "epicanthic fold," covers the inner angle of the eye. This gives the effect known as the "Mongolian eye." This type of eye is not, however, confined to Mongols, but it occurs sometimes in Negroes and also in Leucoderms, more particularly in small children.

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(iv) *Stature*

Stature is the largest bodily measurement and represents the sum of the measurements of all the body-segments. It is thus no matter for surprise that it varies more widely than almost any other measurement, and is readily subject to modification by environmental conditions. Despite this modifiability, there can be no doubt that innate differences of stature do characterize various ethnic groups. Many cases are known of two peoples living side by side exhibiting very different stature. In Europe a good instance is the north of Scandinavia, where very short Lapps live by the side of very tall Norwegians.

In spite of the hereditary element in stature, it is not always of use as an ethnic criterion because of its modifiability and the wide individual variation in every group.

(v) *Head-form*

The physical measurement most frequently cited by anthropologists is head-form, owing to the readiness with which it can be measured, and its relative independence of environmental influences.¹ Head-form is determined according to the relations between the length, breadth, and less frequently the height of the head. These measurements may be of the head of the living or of the skull; in comparing cephalic and cranial measurements allowance has to be made for the thickness of the integument. Head-form is classified according to the ratio of maximum breadth to maximum length of head, expressed as a percentage. This

¹ It is probable that very prolonged pressure by a specially applied apparatus is necessary in order to produce a permanent change in the shape of the head, and it is very unlikely that its shape can be appreciably altered by the attitude in which the infant habitually lies, i.e. whether on back or side. The rapid disappearance of the moulding which the skull so often receives in the birth process is one among several important arguments in favour of the view set forth.

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is the *cephalic index* in the living and *cranial index* in skulls (Abbreviation C.I.). Heads are conveniently arranged according to this index in three arbitrary groups

- * (1) *Dolichocephalic*: Long-headed or narrow-headed, with C.I. under 75.
- " (2) *Mesocephalic*: Medium-headed, with C.I. 75-80.
- " (3) *Brachycephalic*: Short-headed, or broad-headed, with C.I. over 80.

These distinctions are quite arbitrary and are made merely for convenience. Moreover, in any given population, even if classified as belonging wholly to one of these three groups, a considerable range of variation will be found. Hence it has been usual to work with averages, subjected to the proper checks of statistical method. Furthermore the degree and character of variability is of the highest importance, though all too rarely recorded.

Not only are these three groups quite arbitrary, but also any given category is susceptible of a variety of interpretations. Thus a long head may be due to a pronounced development of the hinder parts of the skull, as in later palaeolithic man of the Cro-Magnon type. Yet neither absolute measurement nor cranial index can indicate this, nor mark its contrast with a long head in which the greater relative length is due to development in the frontal portion of the skull. Common sense must supplement measurement, by observation, description, photographic or other record. Comparable defects of method are inherent in the measurement of breadth, for the greatest breadth may be found near the front, the back, or the middle of the skull. Despairing of obtaining comparable measurements, some craniologists have attempted to confine the study of the skull to contour outlines. These, however, have not proved themselves readily amenable to exact comparison, classification, or statistical treatment

Another pitfall is that, in some ethnic groups at least,

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head-form is correlated slightly with stature, becoming rather more dolichocephalic with increasing height. This is a good example of what Darwin called a "correlated variation." Apparent change in head-form during a brief period may therefore be due not to any genetic change but to conditions favouring better general development.

(vi) *Nasal form*

In the evolution of man's prehuman ancestors there was a reduction in the size of the snout, which eventually culminated in the formation of a true nose, protruding from the face. During the later evolution of man himself there has certainly been a further raising of the nose from the surface of the face, an increased modelling of the nose as a separate feature. In the groups of man which have moved from the more or less tropical conditions of ancestral man's supposed early habitat, northward into temperate and sub-arctic climates, the nose has developed not only in prominence but in certain other features. the nostrils have become narrower—*leptorrhine*—as distinct from the flat broad-nostrilled or *platyrrhine* type. However, the geographical distribution of broad, medium, and narrow noses is by no means so simple a matter as the foregoing might suggest. Of all existing men the Arctic Eskimo is the most leptorrhine and the equatorial Negro one of the most platyrrhine, but the Tasmanians, who lived in a temperate climate, were also platyrrhine. Children become more leptorrhine with age.

The process of nostril-narrowing is doubtless the result of natural selection. In a hot climate broad noses snuff up great quantities of relatively warm and moist air without danger of chilling the inner linings of the respiratory organs: indeed abundant ventilation may be useful as a subsidiary cooling mechanism. On the other hand, the cold air of northern climates needs to be warmed by passing through a high narrow nose charged with blood.

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There are devices of measurement for expressing the differences in nasal form, but we need not go into detail concerning them.

Among the white peoples, the form of the nose differs from that of most others and notably from Negroes in the greater height of root and bridge and in diminished breadth. The least striking, most nondescript nasal form is found among that great group of Eurasiatic type which occupies most of Central Europe. In them the nose is likely to be short and the nostrils rather broad without the definite narrowness and elevation of root and bridge characteristic of the Nordic and Mediterranean types. In extreme cases the Eurasiatic nose tends to be snub. The typical Nordic nose is high, long, and narrow with a tendency to pinching in of the wings. The Mediterranean nose has a straight or convex bridge, is rather narrow, and sometimes has a marked depression of the tip. The so-called "Jewish" nose is really Armenoid (p. 149). This type is frequently met with among the Armenians themselves and among other peoples of the Eastern Mediterranean. It is depicted in an exaggerated form on Hittite monuments.

(vii) *Physiological and psychological factors*

Physiological characters, such as body-temperature, pulse-rate, depth of respiration, date of onset of puberty, metabolic changes, and the like; pathological characters, such as the incidence and distribution of disease; and psychological characters, such as colour-vision and acuity of sense-perception, have not yet been properly defined in respect of their ethnic significance, although some of them are now being intensively studied. Neither in extent nor in analysis of the results obtained is knowledge sufficiently advanced to be of classificatory significance to the anthropologist. These issues are therefore outside the scope of this book.

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Considerable attention has been given, especially by American anthropologists, to the mental differences supposed to be associated with difference in "race," in both adults and children. In this department much was at one time hoped from the immense amount of work that had been and is being done. Yet there is now, we suppose, no one with experience of such tests who is very sanguine of obtaining from them any immediate results of classificatory ethnic value. We may use the words of an eminent American authority:

"Anthropologists have not yet reached the point of an agreement upon criteria of race which will enable psychologists to isolate with any degree of facility the racial types which are to be studied. Psychologists have not yet been able to develop mental tests which anthropologists are willing to trust as fair gauges of mental capacity. Neither group has yet perfected its technique of measurement. Until we know exactly how to distinguish a race and exactly what intelligence tests test, we shall have to hold in suspension the problem of racial mental differences"¹

Despite the refusal of the scientific man to commit himself on the question of the innate mental characters of ethnic groups, it is probable that some readers will remain unconvinced. These will say that there really *is* a difference in mental powers between peoples of different nationalities, even in Europe, and that this is a matter of common experience. To such the man of science has many replies, of which we may cite three. First, that we must avoid mistaking cultural for innate differences, and cultural differences are the most obvious and greatest differences between European ethnic groups. Secondly, that mental achievement is the most modifiable of all characters, so

¹ E. A. Hooton, *Up from the Ape*, London, 1931, p. 596.

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that differences in social environment will normally override any genetic differences. Thirdly, that while not denying that there *may be* innate mental differences between various European ethnic types, it is nevertheless very remarkable and surely not without significance that such an enormous mass of investigation has failed to demonstrate what so many are eager to prove

The most generally tried, and certainly in practice the most widely trusted, intelligence tests are competitive examinations. But by the statistical formulation of these tests the most surprising results have been obtained. This comes out especially in the large American Universities, where much attention has been paid to the performance of the numerous "racial types." As an example, we may cite a very interesting research undertaken in the University of Illinois.¹

"Relatively few of the students at this university could be definitely assigned to any racial group. Our student population is very thoroughly mixed in blood and is descended mainly from European populations, each of which is very mixed. . . . Of those who could be so classified (that is according to 'race') an overwhelming majority were Nordics."

The students included in the seven groups treated as classifiable had a scholastic average distinctly below that of the racially unclassifiable mass !

Further, the classifiable groups are Nordics, Mediterraneans, Jews, Alpines, Chinese, Negroes, and "Foreign." Of these the Nordics proved less intelligent than the other classifiable types. The results are clearly in favour of the intermediate rather than of the well-marked ethnic types.

To continue quoting, "The Jews were a racially hetero-

¹ Prof. E. C. Hayes in the *Scientific Monthly*, February, 1928, cxvi, p 158.

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geneous group. Thirty-four per cent of them had grey, blue or greenish eyes, two had red hair. In respect to cephalic index they were distributed pretty evenly all the way from . . . very decidedly dolichocephalic . . . to very decidedly brachycephalic. They showed no tendency to centre about a cephalic type. Many . . . are indistinguishable in appearance from other Americans. . . . So far as this group indicates, they do not represent a racial type."

(viii) *Blood-groups*

A new approach to the study of human populations is provided by the geographical distribution of the "blood-groups." Genetically, these are determined by certain easily-identified genes to be found in the human species.

When blood-transfusion began to be practised, it was found that the blood of all individuals was not compatible. In some cases the blood-corpuscles were clumped or agglutinated, with serious or even fatal results. Further research showed that in respect of this property, human beings fall into four groups—the "blood-groups." Since agglutination can be demonstrated with a few drops of blood, tests can be and have been made on a very large scale. As a result of this it was further discovered that the four groups are the results of the interaction of three allelomorphic genes, usually called A, B, and O (see table), O being recessive. The constitution of the four groups is as follows:

<i>Group</i>		<i>Characters</i>		<i>Genes</i>	
		<i>Agglutinating Substances</i>			
I		O		OO	
II		A		AA, AO	
III		B		BB, BO	
IV		AB		AB	
Group	I	I can receive blood from all,		but can give to none	
"	II	"	IV	and	I
"	III	"	IV	"	I
"	IV	"	none	but	all

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The distribution of these genes is not the same in different human groups. In general terms the present position is that the primitive or original human type as regards the blood-groups lacked both A and B. At some early date A appeared as a mutation, its present distribution suggesting that this took place in Western Europe. At a later date B appeared, apparently in Eastern Asia, where it is a characteristic feature of Mongoloid blood. Such at least is the hypothesis put forward to explain the high percentage of Group II which appears in Western Europe, shading off to an intermediate percentage in Eastern Europe and Western Asia, and the high percentage of Groups III and IV among the Mongolian peoples shading off westwards.

When the distribution of the blood-groups is examined in greater detail, difficulties begin to appear. Of these only two can be mentioned here. One is that the Australian aborigines, a primitive people who have long lived in isolation from the rest of the races of man, show a high percentage of both Group I and Group II, the latter being, as has been said, characteristic of Western Europe. Alternatively, the A mutation may have arisen twice independently. A second difficulty, for which there is no explanation consistent with hard-and-fast ethnological classification, is that although B is characteristic of the Mongolian peoples, it does not appear among the American Indians who are held to be derived from them. The only plausible suggestion offered is that B arose in Eastern Asia at a late date, after the migrations of the American Indians to America. Wherever, among indigenous American natives, including the Eskimo, any other gene than O has been found, it can be proved to be due to alien mixture.

Here again, although the data support the idea that the major groups of mankind were once sufficiently distinct to warrant the name of "race," they also show that there has been a great deal of mixture from the earliest times. When

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we plot the distribution of the three blood-group genes on a map, we find that for each gene there were one or more centres of maximum frequency, where the gene was present in almost every human individual; other centres of minimum frequency, where it was present in none or very few individuals, and gradients of varying frequency between (see maps pp. 110 and 111).

* This one example where differences between groups can be assessed in terms of genes points the way to certain conclusions. If ever the genetic analysis of man progresses sufficiently we shall be able to make such frequency-maps for all the more important genes which distinguish human groups. Meanwhile we must be content with simpler but cruder procedures, such as the mapping of visible characters irrespective of their genetic basis.

This has already been done for certain characters, such as head-form and stature (see maps, pp. 112-13), nose-form, skin-colour, and hair-form. They too show regions of high and low frequency, with gradients between; but here, of course, the frequencies concern visible or phenotypic characters (p. 65), not the actual genes involved in their realization.

An interesting point that emerges is that the various distributions by no means coincide. For instance, the highest concentration of blood-group B may be found either among very tall or among very short people, in ethnic groups of white, yellow, or black skin-colour (see maps, pp 110-13), or associated with straight, wavy, or woolly hair. Similarly there is no hard and fast correlation of head-form with stature, with skin-colour, or with nose-form. This has been well discussed by Allison Davis (1935).¹ He points out that while there do exist various

¹ Allison Davis, "Distribution of Blood-groups and its Bearing on the Concept of Race," *Sociological Review*, vol. xxvii, pp 1-34, London, 1935

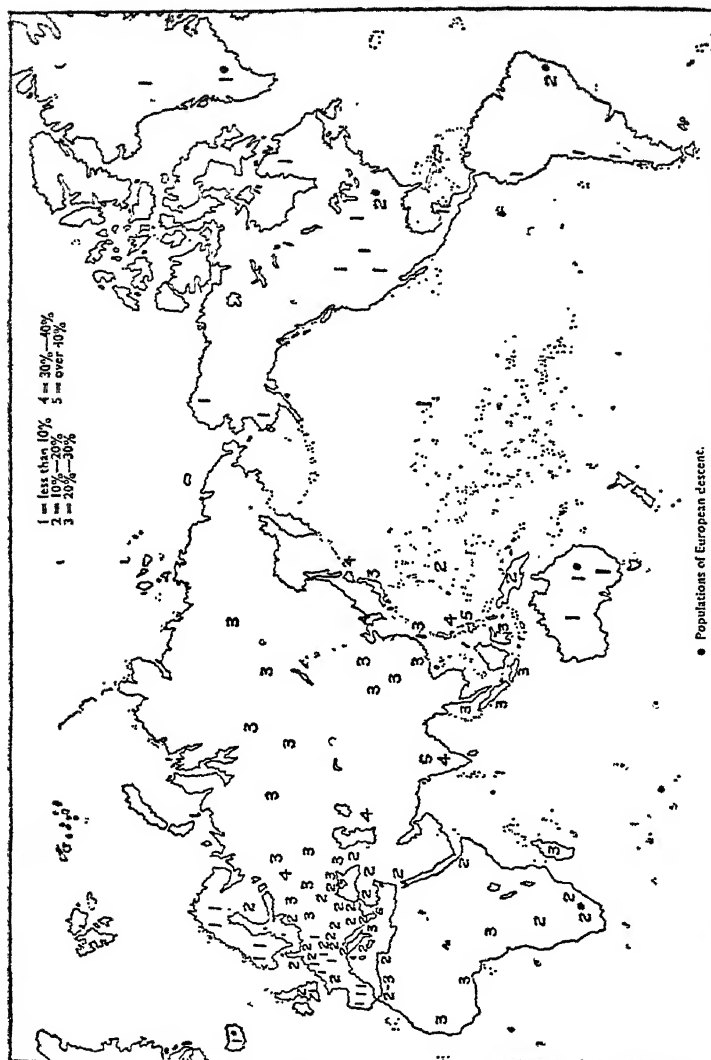
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focal regions in which various characters are found highly correlated, these are quite small, and over most of the habitable globe the correlation between the characters relied upon by anthropologists to classify mankind is only moderate or low—genes originally associated have become “unstuck” by crossing and recombination.

With all these criteria for distinguishing the types and kinds of men, are we able to make any adequate scientific classifications of human aggregates? It must be said at once that a classification by any one set of these criteria cannot be made to correspond, even by any stretching of terms, to a classification by any other set of criteria. Thus if we divide men according to their hair we shall not get the same results as if we divide them according to their stature. If we divide them by stature we shall have different groupings from what we should have if they were divided by head-measurements. Allowing, however, for these incompatibilities, can we utilize a combination of these criteria in such a way that they will help us to classify men? This is, in fact, the usual method adopted, certain combinations of characters being regarded as the criteria of the larger groups—the “races of mankind”

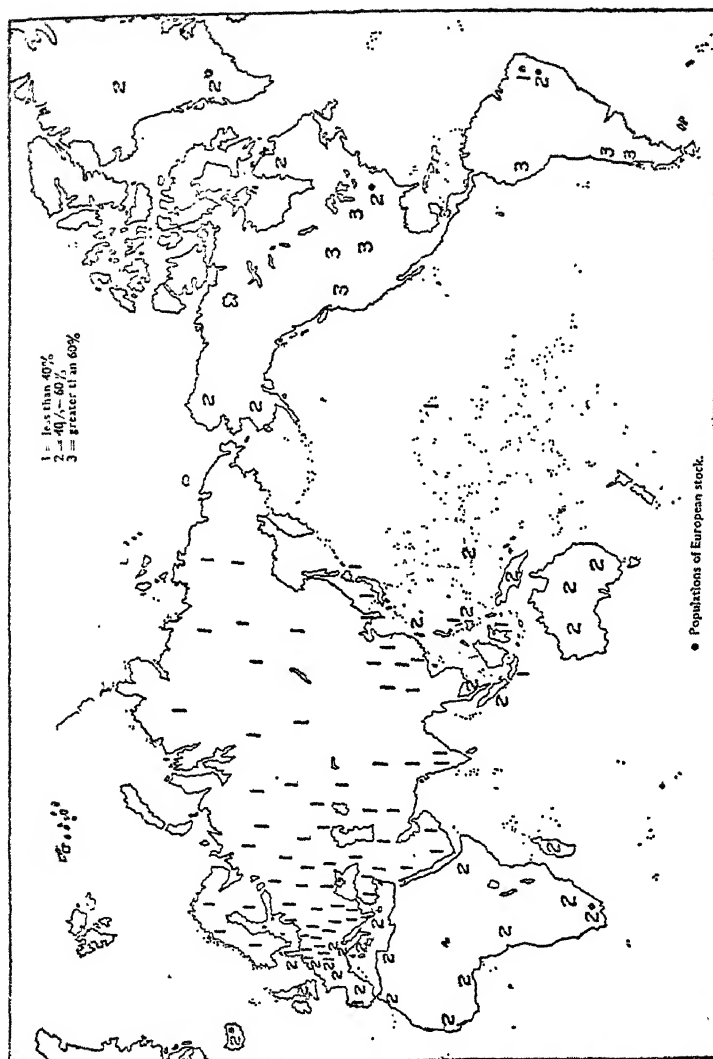
We have already cited the definition of “race” given in a standard dictionary (p. 21). It will be seen how vague and loose is current usage and how even in ethnological writings unwarrantable assumptions creep in. The most essential point would appear to be actual or presumed descent from a common stock. If *race* is a scientific term, it must have a genetic meaning.

It is worth stressing again that, in the light of Mendelian work, when we are comparing groups in whose ancestry the crossing of well-marked varieties has played a part, resemblance is not necessarily a criterion of common or similar ancestry. Thus in the pea, the immediate result of crossing a pure variety with yellow wrinkled seeds, tall



Map kindly supplied by Professor L. T. Hogben

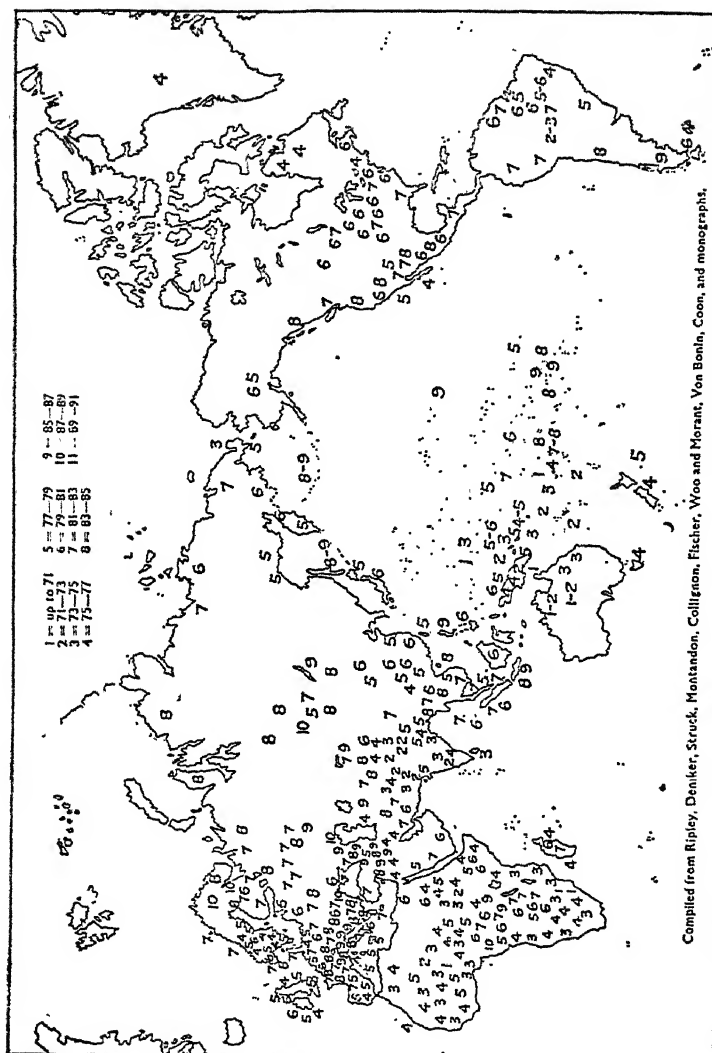
MAP I.—THE DISTRIBUTION OF THE BLOOD-GROUP (AND GENE) B
 The numbers denote frequency of B individuals in the general population



Map kindly supplied by Professor L. T. Hogben

MAP II.—THE DISTRIBUTION OF BLOOD-GROUP (AND GENE) O

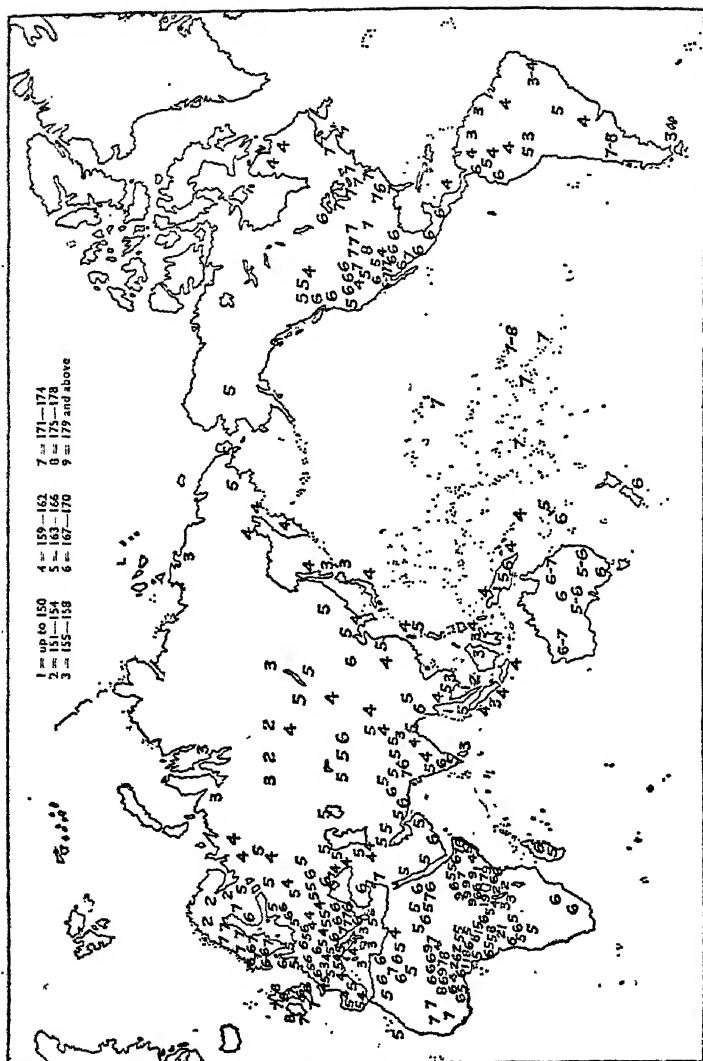
The numbers denote frequency of O individuals



Map kindly supplied by Professor L. T. Hooten

MAP III.—THE DISTRIBUTION OF HUMAN CEPHALIC INDEX (IN LIFE)

The numbers denote mean cephalic index



Map kindly supplied by Professor L. T. Hogben

MAP IV.—THE DISTRIBUTION OF HUMAN STATURE
The numbers denote mean stature, in centimetres

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stature, and coloured flowers with one possessing green round seeds, dwarf stature, and white flowers not only resembles but is identical with the result of a cross between a green and wrinkled-seeded, tall, white-flowered strain and a yellow and round-seeded, dwarf, coloured-flowered variety.

More important, however, is the fact that, as the dictionary definition points out, human groups are of mixed origin—they can be traced back, not to a common ancestry, but to several quite different ancestries. And our knowledge of genetics assures us that once mixture has taken place, it is impossible, without applying the stockbreeder's method of rigorous selective breeding for a large number of generations, to reconvert the population into anything approaching either of the ancestral types. The very word "race" applies to a hypothetical past, or to a problematical future, not to the actual present. As emphasized in the preceding chapter, the only way to measure the "genetic relationship" of ethnic groups would be to ascertain the quantitative values of their coefficients of common ancestry, which would be based entirely upon the statistical methods of probability theory.

It will be useful, in the light of the genetic knowledge gained in our preceding chapters, to see what sort of a picture we can give of the probable course of evolutionary divergence and genetic relationship of human groups and types, and to find out what principles of classification we can legitimately and profitably adopt.

In the early period of evolution of the human family or *Hominidae*, we know that differentiation set in and led to the production of several very distinct generic types of man: later, all of those but one—*Homo*—died out. In the genus *Homo* several separate species were similarly differentiated, but again all of these but one subsequently

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became extinct, so that for perhaps the last 50,000 or 100,000 years *Homo sapiens* alone has represented the human stock. It is, however, possible that sporadic intermixture with the now extinct Neanderthal (and even the Rhodesian) species of man may have taken place, but for this there is no direct evidence (see p 50)

The *Homo sapiens* group, though correctly defined as a species in the sense of an interbreeding assemblage of organisms, is, as we have seen, in many ways of a different kind from other animal species. Nevertheless it appears probable that within this single group the same sort of differentiation proceeded as that with which we are familiar in many animals, leading to the formation of well-marked "geographical races" or sub-species, whose distinctions are largely adaptive in reference to the area of their evolution. It is very difficult to account in any other way for the existence of the major differences of type in man, for instance, between typical Negro, typical Mongol, and typical Leucoderm.

These subdivisions in their original state, *but only in their original state*, might legitimately be called "primary races," though both for the sake of conformity with general biological usage, and to avoid the unfortunate connotations of the word *race*, the term sub-species is preferable. It should be emphasized, however, that the existence of such human sub-species is purely hypothetical. Nowhere does a human group now exist which corresponds closely to a systematic sub-species in animals, since various original sub-species have crossed repeatedly and constantly. For the existing populations, the non-committal term, *ethnic group* should be used.

What is more, there is no agreement as to the number or characteristics of these hypothetical "primary races." Negro, Mongol, and Leucoderm are fairly clear. but whether we should add others to this list, such as the

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Australian, is quite problematical. All that exists to-day is a number of arbitrary ethnic groups, intergrading into each other.

Divergences which resulted in the formation of well-marked varieties is the most probable assumption as to the past history of our species, but it is also probable that intercrossing between these varieties began at a very early stage. Furthermore, the process of divergence and subdivision in man appears to have gone farther than in most animal species without involving sterility between the extreme variants. Within each of the "primary groups" we can deduce subdivisions which also appear to have come into existence owing to geographical isolation. For instance, it is difficult to resist the conclusion that within the "white" sub-species, which alone concerns us here in detail, there once existed geographical groups bearing some relation to the Nordic, Eurasiatic, and Mediterranean types which are now scattered through the European population. These former geographical groups are also frequently styled "races," but it is clear that they are of a different order from the "primary races." It is desirable to have a name for them, and we will call them *minor sub-species*, as opposed to the *major sub-species*, or larger primary geographical groups.

These minor sub-species too are hypothetical, deduced from the distribution of certain well-marked combinations of physical characteristics among the existing population.

The word *race* has also been used in yet another sense. Where large-scale crossing has occurred between two major or two minor sub-species, and the mixed group has then been isolated for a considerable period in a particular area, continued crossing combined with natural selection will produce a more or less stabilized population, which will, however, usually betray its mixed origin by a marked degree of variation. Such a group might be called a

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“secondary race.” The Andamanese, the true Papuans, and probably the Australians appear to have such an origin. Nothing corresponding to a “secondary race” is known in animal species.¹ Since the term “secondary race” has been used by anthropologists in several different senses, to include not only groups of this type, but also what we have called minor sub-species, it will be better to avoid it, and to use the term *secondary sub-species*.

Finally, the word “race” has also been applied to the population of a given geographical area or political unit—e.g. “the German race,” “the British race,” the “Indian race”—or to the speakers of certain types of languages—e.g. “the Latin races,” “the Aryan races.” Such groups are so little stabilized, show such obvious lack of homogeneity, and betray their mixed origin so unmistakably that the word *race* as applied to them is entirely misleading. The term *mixed ethnic group* is probably the best to use.

We must also say something about what are often called “racial types,” though here again more non-committal terms, such as *ethnic*, *genetic*, or simply *physical types*, are preferable. These also are hypothetical, and the term is used in two different senses. In the simpler sense, an ethnic type represents a subjective idea of a human physical type, deduced from the distribution of certain physical characters through an existing population. For instance, the Nordic type is characterized as possessing tall stature, long head, fair hair, and blue eyes, because these characters are often found associated in a majority of the inhabitants of certain regions, as in parts of Scandinavia. When therefore we find such characters associated together in a few individuals

¹ In plants, groups which owe their origin to widespread crossing between well-marked varieties or even species do exist, e.g. in the roses and the willows. But here many of the new types are sterile and only reproduce vegetatively, and the problem is different in many ways from that found in man.

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only, but in most of the population recombined in every conceivable way with other contrasting characters, like short stature, or broad head, or dark complexion, we deduce that the mixed group has originated through the crossing of a stock of predominantly Nordic type with some other stock or stocks.

The other sense goes beyond this simple deduction, and ascribes the characteristics of the type to the whole of a hypothetical "race" (minor sub-species).

However, from what we know of human migration, it is impossible that any minor human sub-species such as the Nordic ever existed in anything like a genetically pure form. Even in its state of maximum isolation, such a group will certainly have contained many genes derived from other similar groups. Furthermore, even apart from crossing, there will be a considerable range of genetic variation in any large group as regards all such characters as head-form, complexion, or stature, and we have no means of knowing to what extent the type as deduced by anthropologists corresponded to the average of the original minor sub-species, nor what degree of variation from it was there found.

It is interesting to take a concrete example of the degree to which the characters used for defining an ethnic type are actually found associated in the region of its predominance. This has been done by Lundborg and Linders for the Nordic type in Sweden in their *Racial Characters of the Swedish Nation* ("Swedish State Institute for Race Biology," 1926). In a random sample of 47,000 Swedish individuals they found the following percentages for eye-colour:

<i>Light</i>	<i>Medium</i>	<i>Dark</i>
87	8	5

Only 7 per cent. of the population has "flaxen" hair. But of that 7 per cent. no less than 97 per cent. has light eyes.

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Among those with dark eyes only 1 per cent. has flaxen hair. Thus there is in Sweden a high degree of correlation between hair-colour and eye-colour.

In contrast with these results we must note that the correlation between either stature or head-form, on the one hand, and eye- or hair-colour on the other, was negligible in the same sample.

The Nordic type is usually defined as fair-haired, light-eyed, long-headed, and tall. It will be clear that these various characters are correlated in very different intensity, even in a so-called "Nordic region"; and the selection of a particular set of characters to define the type is thus seen to be somewhat arbitrary. The aristocracy of Sweden, the most "Nordic" of all countries, is in fact somewhat darker than the working class, as demonstrated by Lundborg and Linders in their official publication.

A true "race" or sub-species, major or minor, is thus a hypothetical group inferred to have existed in the past: an "ethnic type" is a subjective judgment of the normal or ideal characteristics of a component of an existing population.

Both are useful and probably necessary concepts. But they are not enough. All existing human populations are more or less mixed, and accordingly the only accurate method for characterizing them is to obtain frequency curves for the distribution of certain diagnostic physical characters. Stature, head-form, and eye-colour are among the most obvious. Some characters can be accurately measured, while others are expressed numerically in terms of arbitrary grades. For each of these, a frequency curve should be constructed for a representative sample of the population. A series of such curves, with their appropriate statistical treatment, would give an accurate quantitative picture of the differences between ethnic groups, so far as these can be defined by characters taken singly.

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However, we further need to know how these characters are associated. To take a hypothetical case, two ethnic groups might show identical frequencies for the different classes of eye-colour and of stature, but in the one there might be a high frequency of types with dark eyes and short stature, in the other of dark eyes and tall stature. This would constitute a very real biological difference between the two groups.

To deal with this problem adequately is by no means simple. As a beginning, two-way correlation tables should be made for a moderate number of well-definable characters. If the correlations are of simple type, the biometrician can then work out a mathematical expression to give the degree of association between all the characters. Further, if the characters are correlated in groups of three—e.g. head-form, stature, and eye-colour (by arbitrary grades of pigmentation), a direct representation in three dimensions can be given of the form of the association between these three types of character. A very small number of such three-dimensional maps or models would be sufficient to give a scientific description of the main anthropological features of the group.

It is a great reproach to physical anthropology that so much unprofitable speculation about "race" has been indulged in, and has been passed off on the public as science before such absolutely essential descriptive work has been undertaken.

Had the results of such work been available, we should then at least be able to see the ethnic map of the world in terms of the distribution of associated characters, their dissociation after crossing, and their subsequent spread, often at different rates, through the population.

To sum up, the first aim of ethnic classification should be to give an accurate descriptive picture of the physical characteristics of different regional groups, in terms of cer-

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tain agreed physical characteristics. For this we require not only averages and statistical estimates of variability for the single characters, but curves showing their distribution in adequate samples of the population. We further require numerical estimates (correlation coefficients) of the degree of association between different characters. This procedure will enable us to give a descriptive classification of human populations in different geographical regions of the world, in terms of ethnic groups with certain physical peculiarities.

This descriptive classification may then be interpreted in terms of ideal types which are presumed to have combined to form the existing mixed populations, and of hypothetical major and minor sub-species into which the human species must be presumed to have differentiated in the course of its evolution. But the types must not be regarded as fixed, and the sub-species will never have been genetically pure.

The essential reality of the existing situation, however, is not the hypothetical sub-species or races, but the *mixed ethnic groups*, which can never be genetically purified into their original components, or purged of the variability which they owe to past crossing. Most anthropological writings of the past, and many of the present, fail to take account of this fundamental fact.

CHAPTER V

SOME FALLACIES AND PITFALLS OF ETHNIC CLASSIFICATION

DESPITE the new orientation given to the study of man by the Darwinian movement, the metaphysical and frequently mystical concept of "race" as a separately existing entity continued and still continues to dominate the treatment of human groupings. The "racial" concept, as we have seen, is almost devoid of biological meaning as applied to human aggregates, but it is extremely difficult to remove it from popular use. The confusion has been worse confounded by certain developments of anthropological and of political theory. These have tended to widen the connotation of the term "race" and to admit implications of a psychological and cultural character sometimes transcending any strictly biological concept.

Thus the adoption of the evolutionary standpoint in the study of language and culture has often led to rash and reckless use, in these spheres, of biological terms and of the ideas that are at the back of them. Biological principles have constantly been extended to the domain of language, of character, of morals, of culture, of art, of religion, without the necessary reservation that such principles cease to be axiomatic when applied elsewhere than in the biological field. Thus all too frequently ambiguities in the use of terms have been concealed, discussion based on emotion has assumed a pseudo-scientific guise, and a clear conception of the inter-relations of human groups has been sullied by passions and prejudices.

It was only as the facts collected in the field and laboratory accumulated and were subjected to scientific analysis that

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the true nature of the problem emerged, and classification of peoples by language and culture ceased to be regarded by men of science as having any genetic significance, or as establishing a common ancestry.

Language is frequently passed from one group to another. Sometimes a conquering people forces its language on the conquered; sometimes it loses its own language and adopts that of the conquered group. Large numbers of people in South America with varying amounts of Indian genes in their genetic make-up speak only Spanish. Nearly all Negroes in the United States speak English, though there are some in French-speaking districts, such as parts of Louisiana, who speak French, and on Cape Breton island in Canada there are even Negroes who speak Gaelic. The spread of Arabic by conquest is a notable historic phenomenon. The Norman invaders of England, in spite of Scandinavian ancestry, had adopted French as their language, and later took over much Anglo-Saxon from the people they conquered and into whom they were absorbed.

What is true of language is true also for other cultural elements. Habits, inventions, ideas spread by culture-contact they need show no connection with descent or physical relationship.

Terms like "Celtic," "Jewish," "Indian," "Arabic," "English," or "Irish" serve to denote a people or group of peoples bound together by tradition, or history, or language, or religion, or geographical contiguity, or united by cultural affinity or political usage (or misusage), even though the members of such a people are diverse in origin. As designations of ancestral types they erroneously apply a linguistic or a nationalistic terminology to a concept which should be defined only in terms of genetic transmission, or at least in terms of resemblance in physical characters.

Moreover, it must never be forgotten that man, though

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an animal, is a unique animal. Biologically, his outstanding characteristic is his capacity for transmitting experience by what we may broadly call tradition, without recourse to physical inheritance. Thus it comes about that those characters of man which are biologically most important, such as speech, gesture, habit, cultural traditions, and all their associations and results, are precisely those which are found in no other animal species. They are of great interest and importance, but they are not and cannot be criteria of genetic composition or genetic origin.

One particular and very unfortunate ascription of the methods of one science to those of another, is the myth of the existence of an "Aryan race," the repercussions of which have been so intense that we must discuss it separately.

Despite the fact that England had had commitments in India from the beginning of the seventeenth century, there was no scientific interest in the languages of that sub-continent until the end of the eighteenth century. In the year 1783 the eminent oriental scholar, Sir William Jones (1746-1794) landed in India as Judge of the High Court of Calcutta. He began at once to study the Indian languages. During the remaining ten years of his life he demonstrated the relationship of the Sanskrit and allied tongues to the main vernaculars of Europe

It was Sir William Jones who introduced the word *Arya* into modern European literature. He used it in a translation from Sanskrit in a perfectly correct and purely linguistic sense, to distinguish the speakers of certain Indian languages from others. Later it was used to denote the speakers of the Aryan or Indo-European family of languages, or sometimes to denote the languages themselves. The word itself means "noble" and is applied especially to deities. It is of Sanskrit origin, occurs also in Zend, and passed thence

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into Persian and modern Indian dialects. It was used by the Greeks and Romans (Latin *Ariana*, modern *Iran*) as a description of Eastern Persia, the district now called Afghanistan. *Arya* has been also used, as Sir William Jones well knew, as a religious group-name, to distinguish the worshippers of the gods of the Brahmans from the worshippers of certain other Indian deities.

During the first half of the nineteenth century the work begun by Sir William Jones was carried on by European philologists, especially in Germany. It came to be realized that there was a concrete group of languages which had certain very distinctive common factors and included Sanskrit, Zend, Sinhalese, Pehlevi, Pali, Armenian, Persian, Greek, Latin, as well as the Celtic, Teutonic, Slavonic, and other sub-groups. Hittite has recently been shown to be of the group. The greater number of these languages are, or were, spoken in Asia. They came to be described as "Aryan," though they were also called "Indo-European," "Indo-Germanic," and sometimes—following a Biblical theory—"Japhetic." There was, however, always a tendency among philologists to restrict the use of the word Aryan to the Asiatic portion of this group of languages. This restriction rested on the firm ground that only the ancient Indian and Persian speakers of this family of languages called themselves *Arya*.

It happened that at the beginning of the nineteenth century the Romantic school in Germany became attracted to the study of the Indian languages. This was largely the result of the efforts of the poet Friedrich von Schlegel (1772–1829), who, with his equally romantic wife—a daughter of the Jewish philosopher Moses Mendelssohn (1729–1786)—became deeply impressed by Sir William Jones' translations from the Sanskrit. Friedrich von Schlegel learnt the language and induced his brother, August Wilhelm von Schlegel (1767–1844), to do likewise.

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In 1818 August Wilhelm became, at the University of Bonn, the first Professor of Sanskrit in the West

From Schlegel's time to the present, the study of the philology of the Indian languages and their relation to the European has been pursued in Germany with more zeal than in any other country. We are not concerned with the general course of these investigations, but there is one incident which is specially important for our theme

In the early years of the reign of Queen Victoria—from 1841 to 1854—the Prussian Minister to Britain was Baron Christian Carl Josias Bunsen (1791–1860), whose grandson was British Ambassador to Vienna at the outbreak of the Great War. Baron Bunsen was a considerable scholar, overflowing with enthusiasm for German philology. In 1847 he read a paper to the British Association at Oxford, in which he sought to show that the whole of mankind could be classified according to language and that this was a valuable anthropological guide¹

About this time there came to England, under Bunsen's patronage, the young German scholar Friedrich Max Muller (1823–1900), who settled in Oxford in 1848 and remained there for the rest of his life. The high character and great literary and philological gifts of Max Muller are well known. About 1853 he introduced into current usage the unlucky term *Aryan*, as applied to a large group of languages. His use of this Sanskrit word contains in itself two assumptions—one linguistic, that the Indo-Persian sub-group of language is older or more primitive than any of its relatives; the other geographical, that the cradle of the common ancestor of these languages was the Ariana of the ancients, in central Asia. Of these the first is now known to be certainly erroneous, and the second is at least

¹ *Report of the 17th Meeting of the British Association*, London, 1847, p. 254. This false idea had long been in Bunsen's mind, as shown in his *Memoirs* published by his widow in 1868.

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very doubtful. Around each of them a whole library of literature has arisen

Moreover Max Muller threw another apple of discord. He introduced a proposition which is demonstrably false. He spoke not only of a definite Aryan language and its descendants, but also of a corresponding "Aryan race". The idea was rapidly taken up both in Germany and in England. It affected to some extent a certain number of the nationalist historical and romantic writers, none of whom had any ethnological training. It was given especial currency by the French author de Gobineau (p. 58). Of the English group it will be enough to recall some of the ablest, Thomas Carlyle (1795-1881), J. A. Froude (1818-1894), Charles Kingsley (1819-1875), and J. R. Green (1837-1883)

In England and America the phrase "Aryan race" has ceased to be used by writers with scientific knowledge, though it appears in political and propagandist literature. In Germany the idea of an Aryan race received hardly more scientific support than in England. Nevertheless it has found able literary advocates, has been made to appear very flattering to local vanity, and has steadily spread, fostered by special conditions with which we are not concerned, though some of its fruits are very evident.

Max Muller was later convinced by scientific friends of the enormity of his error and he did his very best to make amends.

Thus in 1888 he wrote: "Aryas are those who speak Aryan languages, whatever their colour, whatever their blood. In calling them Aryas we predicate nothing of them except that the grammar of their language is Aryan"¹ "I have declared again and again that if I say Aryas, I mean neither blood nor bones, nor hair, nor skull; I mean simply

¹ Max Muller, *Biographies of Words and the Home of the Aryas*, London, 1888, p. 245

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those who speak an Aryan language. . . . When I speak of them I commit myself to no anatomical characteristics. The blue-eyed and fair-haired Scandinavians may have been conquerors or conquered. They may have adopted the language of their darker lords or vice versa. . . . To me an ethnologist who speaks of Aryan race, Aryan blood, Aryan eyes and hair, is as great a sinner as a linguist who speaks of a dolichocephalic dictionary or a brachycephalic grammar.”¹

Max Muller frequently repeated his protest, but alas ! in vain. “The evil that men do lives after them, the good is oft interred with their bones”¹ Who does not wish to have had noble ancestors ? The belief in an “Aryan race” had become accepted by philologists, who knew nothing of ethnology—and even by a few ethnologists who had had no technical training and no clear idea of the biological meaning to be attached to the word “race” The influence of the idea of an “Aryan race” vitiates the work of a small band of anthropologists to this very day. If the term Aryan is given a racial meaning at all, it should be applied to that ethnic unit, whatever it was, that first spoke a language distinguishable as Aryan. Of the character of that hypothetical unit it is the simple truth to say that we know nothing whatever As regards locality the balance of evidence appears to suggest somewhere in the region north of the Caucasus

There is no need to trace in detail the history of the Aryan controversy. It will be enough to say that while the Germans claimed that the Aryans were tall, fair, and long-headed—the hypothetical ancestors of hypothetical proto-Teutons—the French, mainly on cultural grounds, claimed that the language and the civilization came into Europe with the Alpines (Eurasiatrics, p. 149) who are of medium build, rather dark, and broad-headed. The decipherment

¹ Op cit, p. 120.

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of the language of the very Jewish-looking Hittites—which was certainly Aryan—and the discovery of certain Aryan languages in North-West India may throw a new complexion on the whole question.

Both the German and the French views cannot be entirely true, but both may be partially or entirely erroneous. In so far as the origins of our complex civilization can be associated with any particular physical type, it must be linked neither with the Nordic nor with the Eurasiatic but rather with the Mediterranean. And when we come to deal with the existing ethnic conditions of central Europe, it will be seen that the prevailing physical type is Eurasiatic rather than either Nordic or Mediterranean.

We pass from discussing errors concerning the origin of the population of Europe to consider elements that are not only obscure or misconceived or both, but are also scarcely to be credited. In all discussion concerning ethnic groups it has always been difficult to reach firm ground in anything like an accurate and extensive record of the actual descent of the individuals to be investigated. The uncertainty of their own descent seems to be unrealized by the great majority even of educated people. One frequently hears and reads the statement, for instance, that an individual is “a member of a family which has resided at such-and-such a locality for hundreds of years.” It is not realized what vast research the tracing of such a descent would mean.

Suppose that we wish to trace a family history back to about 1700—say 240 years—a claim by no means unusually made. Allowing 30 years for a generation, this would mean eight generations and (not allowing for kin-marriage) a consideration of 510 individuals, that is to say, two parents, plus four grandparents, plus eight great-grandparents, and so on up to 2^8 . How many people know anything of all their 510 ancestors since the year 1700? We

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shall be surprised if many of our readers can give the names of a tenth of that number. What proportion of people can supply even the names of all their eight great-grandparents, let alone give any account of all of them? Inquiry among friends will elicit the fact that the proportion is quite small. The descent can often be traced in one or two male lines for several generations, but the record through female lines usually fades after two generations, except for the direct line at which alone the genealogist is generally aiming.

Moreover, to trace legitimate descent back to eight generations would involve the investigation of 255 separate fertile couplings, all of which must be in wedlock. On this matter the question of illegitimacy comes in. If the comparative figures of illegitimacy be examined the conclusion will soon be reached that no ethnologist who is investigating Europe can afford to ignore this factor.

The figures are approximately as follows.¹

<i>Country</i>	<i>Illegitimate births (percentage of total births)</i>
Austria	27.0 increasing
Belgium	4.3 decreasing
Czechoslovakia	10.8 stationary
Denmark	10.8 "
England and Wales	4.6 "
France	8.5 "
Germany	12.1 increasing
Holland	1.8 decreasing
Hungary	8.8 stationary
Italy	5.0 "
Switzerland	4.4 "

¹ In describing the figures as "increasing," "decreasing," or "stationary" it will be noted that the rate of illegitimate births to all births is considered for each country. The movement (or want of movement) of these rates, in any case, may or may not be a function of the birth-rate as a whole. The proportional rates over a long series of years for each country is given on pp. 238-9.

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These figures represent the latest available statistics of illegitimacy (from 1930 to 1932 in different cases) in official returns. Such figures cannot, however, of their nature include certain other categories. Firstly, there are the children of married women by others than their husbands. Secondly, there are the children of single women falsely returned as married. There can be no means of estimating these categories, but the true figures of illegitimacy must be considerably higher than the returned figures. Illegitimacy has thus to be taken into account in considering descents.

From our table it will be seen that the highest figures for illegitimacy are in the German-speaking countries (For the very high figures in Austria there are special reasons of a social and religious nature, which we need not discuss here.) In Germany nearly one person in eight is born officially illegitimate, and a higher proportion must actually be illegitimate. Under such circumstances what chance will there be of any reliable knowledge of a descent involving 255 couplings and some 510 individuals in the last two and a half centuries? On this as on many other grounds we must dismiss all idea of "purity of racial descent" among human beings as a figment without any adequate basis of support derived from observed fact.

The most extensive investigation that has yet been made of supposedly "pure stocks" is that of Dr. Ales Hrdlička on *The Old Americans* (1925)—an excessively laborious and painstaking piece of work, in which the author investigated the physical characters of Americans of long American lineage. He soon found that in effect he could not go beyond grandparents, and even then true "Old Americans," who satisfied his scientific standards as to the American birth of their grandparents, were far from easy to find. He was able, however, to investigate some 2,000 of them, who, to judge by their measurements, proved to be a highly

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variable group In the following table we give only the figures derived from the pigmentation of the males.

<i>Skin Colour</i>	Light	0 5 per cent.
	Medium	67 5 "
	Swarthy	27 5 "
	Freckly	4 5 "
<i>Hair Colour</i>	Light	5 3 per cent.
	Light brown	16 0 "
	Medium	50 0 "
	Dark	25 0 "
	Black	1 1 "
	Red	2 6 "
<i>Eye Colour</i>	Light	31 0 per cent.
	Mixed	52 5 "
	Dark	16 5 "

The other figures and measurements of the "Old Americans" varied within similar ranges. Of the figures as a whole it may be said that they represent a fair random sample of Europeans taken with an avoidance of those from the Mediterranean region (which is not the same thing as an avoidance of the Mediterranean type). The study of Dr. Hrdlička's work will leave little doubt that the well-known "American type" is a product of social not of genetic factors, and that the Nordic element in the "Old American" is small (pp. 209-10).

These conclusions are strengthened by the marked change in physical appearance to be noted in the United States during the last forty or fifty years. What used to strike foreign observers was the prevalence of tall lantern-jawed individuals: what strikes them now is the prevalence of square-faced stocky business men. Uncle Sam has given place to Mr. Babbitt. In so far as this is not merely an affair of subjective opinion but represents a real change—and there is reason to suppose that it does so to a measurable extent—it must be largely due to non-heritable social

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modification impressing itself on the population in each generation.

Hitherto we have considered the difficulties and pitfalls of the ethnologist when he is treating separate ethnic groups. When he turns to what is, after all, his main task, the presentation of some picture of mankind as a whole, that is the interrelation of ethnic groups, then difficulties accumulate beyond present solution. In theory, taking the whole world as his province, it might perhaps be expected that the ethnologist could plot out his grouped characters in such a way that the whole of mankind should fall into natural classes of which the affinities could then be demonstrated according to a scale of related characters. In actual practice it soon becomes evident that no two of the grouped characters which have been made the basis of classification coincide in distribution. Wavy hair does not invariably accompany a narrow prominent nose, and the associated stature may be tall or short. A fair-haired people is not invariably dolichocephalic or blue-eyed. When the distribution of characters is plotted geographically, the resulting map is like a sheet of paper on which half a dozen or more different colours have been spilt on top of each other, and allowed to run irregularly at the edges. The reason for this is the relative independence of characters after crossing, due to the existence of separate Mendelian genes and their capacity for recombination (pp. 68-70)

It follows that any attempt at racial classification which is based upon the distribution of characters, must be content with an arrangement which holds good only in general terms and is subject to numerous cross-divisions

On the other hand, the ethnologist may, and very frequently does, approach his problem by reference to previously defined hypothetical types, although this may not

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always be admitted by him. This method is perfectly legitimate in certain stages of an inductive science, but in ethnology it has stimulated generalization from inadequate data. Recent advances in our knowledge of genetics throw doubt upon its value for our particular theme. For this the manner of growth of ethnological investigation is partly responsible. Geographical exploration has proceeded piecemeal and knowledge of the different varieties of man has been gathered here and there and little by little. Thus types found in remoter parts of the world have been described before material has been available for the systematic study of the problem as a whole.

In all this, of course, ethnology does not differ from any other branch of systematic study of material drawn from a wide geographical distribution, but in the study of man the result seems to have been particularly unfortunate.

A great part of the ethnographical literature is vitiated by what seems a peculiarly elementary error. Descriptions of population are given a false appearance of exactness by the use of average figures for measurements, sometimes with the addition of the extreme variations at either end. Such statements have little if any greater value than general impressions. If we are told that in a group of, say, twenty individuals "the average height is 5 feet 6 inches" we know nothing of the composition of the group. It may, for instance, consist of ten giants of 6 feet 6 inches and ten dwarfs of 4 feet 6 inches. If to the statement is added the additional qualification that the extremes are 5 feet and 6 feet, we still know nothing definite of the group except that it contains no dwarfs and no giants. It may consist of ten tall individuals of 6 feet and ten short individuals of 5 feet, or it may contain one individual of 5 feet, one of 6 feet, and eighteen of 5 feet 6 inches. And there is an infinity of possibilities between these extremes.

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Nevertheless, anthropological literature is full of meaningless statements of this order. They fill the pages of most of the many books on "The Races of Man." This false method has been misapplied with endless industry, especially to head measurements. Such measurements are most easily made on specific social and political groups, and on their fallacious results all manner of hypotheses have been and are being erected around the unscientific conception of "race."

The only expression of measurements that is worthy of scientific consideration consists of curves of frequency-distribution and mathematical conceptions derived from them. But if even these are to have any value, the investigator must know exactly the nature of the group that is being measured—whether, for instance, it is a true random sample, or whether there has been some selection, and if so what kind of selection.

There is another group of ideas that has not only introduced an extraordinary number of errors and misunderstandings into discussions as to the "races" of man, but has also involved a fallacious method of presentation. The evolution of man and, specifically, of the existing varieties of man, is frequently represented in the form of a tree. Much misunderstanding has unfortunately arisen in the course of evolutionary discussion by the use of this term and its dependants, "stem," "stock," "branch," "root," and so on. The simile is in many ways very unfortunate, since the essential picture created by a tree is that of roots converging in a trunk which diminishes as it ascends, and gives off branches on the way. Now most of the elements of this picture must be discarded if we would visualize the process of biological descent. Firstly, there are no converging roots. Secondly, all trees have an innate method of growth determining their general habit, whereas in biological descent the race habit is not

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branching is determined by opportunity and by external circumstances rather than by internal powers. Thirdly, the question of which is branch and which trunk has an obvious answer for a tree but is by no means obvious at any particular level of evolutionary descent. Fourthly, evolutionary branches may—if they have not proceeded too far—unite again after they have diverged and then either rebranch or remain united. This reunion of branches is especially pronounced in man.

One of the most pernicious of all methods of viewing the European scene is what we may call the “systematized anecdotal.” Each nation and each group within each nation forms its own idea of itself.

O wad some Power the giftie gie us
To see oursel's as ithers see us !
It wad frae mony a blunder free us,
An' foolish notion

There is such a power. That power is science, and especially the science of statistics. It would doubtless surprise many Germans to learn that in Germany the returned rate of illegitimate to total births is the highest in Europe except that of Austria and that it is nearly three times as high as in England and 50 per cent higher than in France (pp 238–9), that in Germany the suicide rate is double that in England and half as high again as in France (p. 240), and that in Germany the homicide rate is four times as high as in England and twice as high as in France (p. 241). Doubtless if we examined statistics of certain other matters we should discover that our own country was in no position to cast stones at others. And that is a very good reason to avoid national complacency and to seek that humane and objective attitude which science—through reason and absence of prejudice—alone can give.

FALLACIES AND PITFALLS

It is difficult to avoid the conclusion that not a few of the anomalies which are encountered by those who have endeavoured to trace the "racial affinities" of the varieties of man have arisen from an *a priori* approach to the problem. Characters have been attributed to a preconceived type, rather than the actual type determined from its characters by patient research on the populations themselves. Tables of "racial affinities" have been drawn up for which there is very little ponderable evidence. Conflicting facts have been ignored. Such, for example, is the fact that types have been postulated as a logical necessity without due emphasis on their hypothetical character, although no individual in a given population may conform in all characters to that type.

This concept of an original ideal type, later obscured by the admixture of alien elements, has provided the intellectual foundation for all the arguments of the "Nordic" and "Aryan" theories and the attitude these involve towards "racial" and political problems. We repeat that such writing and such thinking is not justified by science.

CHAPTER VI

THE MAIN ETHNIC GROUPS OF EUROPE

WE have discussed some of the many obstacles to an attempt to arrange the ethnic groups of mankind in an ordered classification. These difficulties are in part due to man's readiness to resort to migration for solving his economic difficulties and especially threats to his food supply, whether from nature or from his fellow-men. These continual movements from territory to territory, whether by gradual penetration or by overwhelming waves of migration, have brought about constant redistribution of ethnic groups. Different ethnic groups when they come in contact will often fight but they will invariably interbreed. Thus it has come about that human movements, with their consequent contacts, have profoundly changed the physical characters of the groups upon which they have impinged.

The reader is now in a position to appreciate the fundamental difference between the term "race" as applied to animals and the term "race"—for which we prefer to substitute the term "ethnic group"—as misapplied to man. With certain rare and special exceptions—the nature of which does not affect our discussion—the races of animals do not wander from their normal habitat. Even the annual movements of birds, the most mobile of animals, take place along regular tracks. Stability in the habitat of animals is an important and basic factor in the formation of races, or "sub-species" as zoologists usually call them.

To take one example, the elephants of Ceylon form a race of the Indian elephant, species *Elephas indicus*. The

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Ceylon race of the species *Elephas indicus* is very distinctive, for instance, in the females not possessing tusks. The two races are doubtless completely fertile *inter se*, but "Adam's Bridge" connecting the continent of Asia with Ceylon has been a chain of islands impassable to elephants for many millennia.

How different from the human inhabitants of Ceylon! Most of the ethnic groups that have ever come into India have passed or been driven southward or have travelled by sea to Ceylon and have left descendants there. Even the Vedda of Ceylon have absorbed much foreign blood and culture and speak a language which is largely Aryan though they still rank with the Australians, the Negrillos of central Africa, and the Andamanese among the peoples possessed of the most elementary of existing cultures.

In the vast majority of existing peoples, and more especially in those of Europe, most individuals present combinations of characters which are to be traced to a variety of sources. There are also many national groups in which there is no single clearly predominant type. In such a grouping, judgment as to the dominant type becomes at best a matter of statistical computation. Moreover, even statistics will not help us unless they represent the number and degree of variations from the mean or average. As we have suggested, we need a series of frequency curves to give an ethnological description of such groups.

Any systematic descriptive account of existing peoples must therefore include many mixed and intermediate groups of which the ethnic position and affinities are matters of inference. The physical characters of the larger part of the world's population have still to be submitted to effective observation and analysis. Many observations that have been made, especially in Europe, have been the work of biased observers, or have been

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made on selected materials and need correction. Seldom do the published figures allow a proper statistical treatment of the range of variation.

Hence some anthropologists have gone so far as to say that no classification of human ethnic groups, in a biological or indeed any scientific sense, is possible. Any biological arrangement of the types of European man is still largely a subjective process, and is at best classificatory in a descriptive sense only. It should, therefore, be no matter for surprise that there is much difference of opinion as to the number of the varieties of man which should be recognized. In the progress of ethnological study there has been a marked tendency to add to the total.

Linnaeus (1735) recognized four "varieties" of *Homo sapiens*: European Man, Asiatic Man, African Man, and American Man. Blumenbach (1781) adopted five: Caucasian, Mongolian, Ethiopian, American, and Malay. Huxley (1870) described five "principal races" or "types" and fourteen "secondary races" or "modifications." Deniker (1900) formulated seventeen groups, consisting of twenty-nine "races" and "sub-races." In the ultimate analysis the matter must be incapable of scientific determination, since the decision as to what is a "race" is a personal matter resting largely on subjective impressions.

For the present purposes only the more widely recognized groupings will be considered. Their principal characters will be noted only in so far as is necessary to discuss the place assigned to European peoples in the general classification of ethnic types.

In considering ethnic groups, especially of the kind to be met with in Europe, three main methods may be employed: (1) with reference to the existing geography of certain physical types; (2) with reference to the migrations of ethnic groups in the past; (3) by full description of populations in terms of physical characters, together

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with statistically valid curves and correlation tables which can then be interpreted in the light of other knowledge.

(1) With the geographical method, existing populations are observed and arranged around ideal types. These types are constructed according to current beliefs regarding the character of the minor sub-species (p. 116) which are assumed to be the original constituents of the present mixed population. (Since these ideal types must be created from the individuals that we observe, it must be realized that the process is a circular one and not a steady progress from the known to the less known) A human geography is thus built up by outlines of those regions in which representatives of the ideal types are found in the highest proportion

(2) With the historical method, an explanation of the present distribution of ethnic types is sought by considering the past distribution and movements of actual or inferred ethnic groups. (It will be observed that this is also a circular process) The past records of ethnic groups, when not contained in older written documents, must be pieced together as "pre-history," that is the investigation of human remains and associated cultures. In considering all cultural phenomena it must be kept steadily in view that the processes of cultural descent are quite different from the laws of biological inheritance. This method is the *archaeological* in the restricted sense

(3) The third method, of straightforward but full scientific description, has not yet been employed on an adequate scale. It should be the next goal at which to aim.

With regard to the methods actually employed, we see that each has its inherent difficulties and fallacies. In the present formative state of ethnological science the

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methods 1 and 2 do not yield results which coincide very closely. It is true that we can only deal with such knowledge as we have and treat it for what it is worth. But it is also true that it is the besetting sin both of writers and readers of anthropological works to assume more than the methods will yield or the facts allow. Thus many of the passions arising from economic and cultural clashes have been rationalized on very unsure ethnic foundations. The great prestige of scientific method has carried with it many such unfortunate misunderstandings. The results, especially perhaps the negative results, of anthropology are extremely valuable, but they must be kept strictly within their own sphere. There is not yet an agreed body of scientific opinion concerning the origin and variability of the different characters and especially the mental characters of the various ethnic groups. Thus there is still lacking adequate knowledge for sound judgment.

In the following sketch of an arrangement of the main varieties of mankind we shall confine our attention to those characters which are the most convenient and readily observed. We place the hair in the first rank and combine with it the pigmentation of the skin and the form of the nose, as described on pp. 98-102. We can thus distinguish three major groupings of mankind:

- (1) Black woolly hair, dark brown or black skin, and a broad nose.
- (2) Wavy or curly hair of any colour from black to flaxen, dark brown to white skin, and typically a medium or narrow nose with usually a high bridge.
- (3) Straight, lank dark hair, yellowish skin, nose with a tendency to be broad and low-bridged.

Very broadly speaking, each of these groups is characterized by a difference in the head-form. The peoples with dark skins have predominantly long heads, the peoples with yellow skins have predominantly broad

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heads, and the peoples with light skins have predominantly medium heads.

There is an enormous number of exceptions even to this primary arrangement, and there is a great deal of overlap of the classificatory characters. Thus broad-headed peoples occur among the dark-skinned group: there is, for example, a broad-headed element amounting to about five per cent. among certain Negroes of the Congo. Again, many individuals with wavy hair and other characters of the "white" group have quite as much pigmentation of hair and skin as certain individuals in the woolly-haired dark-skinned group, as for example of the Australian aborigines and of the darker peoples of South India. In fact anomalous features complicate all attempts at arrangement.

Speaking in the most general terms, the woolly-haired, dark-skinned peoples live within or near the tropics in Africa and Oceania, but the Tasmanians lived in a temperate climate. The smooth-haired, yellow-skinned peoples live eastward of the Pamirs in Asia and extend over the American continents. The wavy- or curly-haired groups (Cymotrichi) are intermediate in physical characters between the other two major groups and roughly speaking occupy the rest of the world.

Among the Cymotrichi the hair may be straight but it is finer in quality than that of the lank-haired yellow-skinned major group, and it is not circular in section. There are all shades of skin-colour from fair or "white" to very dark, and also all varieties in head-shape. Culturally the differences are equally pronounced. At one end of the social scale are numerous Cymotrichous peoples, as for instance the hairy Ainu of Japan,¹ the

¹ Some ethnologists regard the Ainu as proto-Nordic. They have a light brown skin, dark wavy hair and dark eyes, their language is not Aryan.

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jungle tribes of India, the Vedda of Ceylon, and the Australian aborigines, all peoples with primitive forms of culture—but these are outside the scope of this book. At the other end of the social scale are the peoples responsible for the great ancient and modern historic civilizations of the Near and Middle East and of Europe.

When the modern type of man was occupying Europe in Aurignacian times at the beginning of the Upper Palaeolithic Age there were several types of presumably Cymotrichous man of which mention need be made only of three: (1) Grimaldi, of moderate stature, with a long narrow head and slightly protruding jaw. (2) Cro-Magnon, of very great stature, a long narrow but low head with a short broad face. (3) Predmost-Combe Capelle, with a long narrow but high head and a long face.¹ There were other varieties in the mesolithic (Epipalaeolithic) period. Traces of some of these types can still be found among existing peoples in various places, but they have disappeared as ethnic groups.

Important for our purpose is a great sub-group of the Cymotrichi for which the term "Mediterranean" in an extended sense is now usually employed. Elliot Smith has suggested for it the name of the "Brown Race." It comprises a collection of ethnic groups characterized by a sallow-white to light brown or even brown complexion, black hair, long to medium head-form, and medium stature. The Mediterranean type is much more widely distributed than the Mediterranean area, as was recognized by Sergi in his classical work, *The Mediterranean Race* (1901).

In Africa the Mediterranean type is so widely distributed

¹ The "cymotrichous" (Greek = "wavy-haired") character of these three groups is an inference, chiefly from the form of parts of their skeletons. No hair of these people has survived

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that some would prefer to call it "Hamitic" Moreover, the same type is found much farther north, for example in England. Thus Elliot Smith writes

"So striking is the family likeness between the Early Neolithic peoples of the British Isles and the Mediterranean and the bulk of the population, both ancient and modern, of Egypt and East Africa, that a description of the bones of an Early Briton of that remote epoch might apply in all essential details to an inhabitant of Somaliland."¹

At the present day this dolichocephalic group of wavy-haired people is a fundamental element in the population of Europe, especially in the West. The type is widely distributed from the Mediterranean to the British Isles. It is well represented in the Iberian Peninsula and the western Mediterranean. It constitutes a strongly marked element on the north coast of Africa, and of the East African coast north of the Negro zone, where it is represented by the particular type everywhere recognized as Hamitic. The eastern branch of Hamites more often than not shows Negro admixture.

The physical characters of the Mediterranean type are wavy or curly black hair, an average stature of about 5 feet 3 inches, slender build, long head and narrow oval face, straight nose rather inclining to be broad; the eyes are very dark. The pre-dynastic or proto-Egyptians present perhaps the purest example we have of the Mediterranean type, which in the modern Egyptian has been modified by the incoming, as far back as Pyramid times, of a rounder-headed broader-faced people. There were probably several varieties of European Mediterranean man, but such details do not concern us here.

The Semites can only be regarded as a group of Mediter-

¹ Elliot Smith, *The Ancient Egyptians* (1923), p. 65.

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raneans who have been named from the language they speak. The term "Semite," like the term "Aryan," should not therefore strictly speaking be employed save as a linguistic and cultural description. It denotes in current ethnological usage a number of Semitic-speaking peoples, such as Arabs and Jews,¹ and in this sense alone can we employ it here. The Arabian "Semite" is of medium stature, with a long head, black hair, oval face, and a finely formed narrow nose.¹ The Bedawin of northern Arabia is no doubt the purest "Semite" living, this is the Arab of the text-books, with a fine oval face described as sometimes of almost ideal beauty. In south Arabia, though mainly Arabic-speaking, other Semitic languages occur, and the people are predominantly round-headed, frequently with an Armenoid nose; they are, as far as our present knowledge goes, essentially Mesopotamian, though it is likely that these incomers have overlaid and modified older local types.

The "Hamites," or Hamitic-speaking peoples, are generally divided into two groups, the Eastern and Northern, the latter being African Mediterraneans, sometimes called "Libyans" by those who do not recognize them as Hamites. The Eastern "Hamites" are most closely akin to the so-called "Semites." In fact physical, linguistic, and cultural evidence indicates that Semites and Hamites must be regarded as twin groups sprung from a common stock not so many thousand years ago. This applies especially to the Eastern Hamites (proto-Egyptians, Abyssinians, Somali, and the Beja of the Eastern Egyptian desert and the Red Sea coastlands farther south). The Eastern Hamites are represented in their purest form by certain hill peoples of the Eastern Egyptian desert and the Beni Amer of the Sudan. They are long-headed, rather

¹ It must be remembered that most Jews are very unlike the "pure" Semitic type of northern Arabia

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short of stature, and with a reddish-coloured skin, the usually curly hair, long face, and pointed chin are characteristic of this group. The Northern Hamites have become somewhat differentiated from the Eastern group. They are indeed scarcely to be distinguished from European Mediterraneans. Especially among the Kabyles are to be found a considerable number of tall, brown-haired, blue-eyed individuals. These elements some students ascribe to a late Vandal immigration, but green-eyed, red-haired Libyans are unmistakably represented in Egyptian tombs of the nineteenth dynasty.

The Hebrew people were no doubt in the first instance of North Semitic provenance, from their written records we must conclude that they were originally a North Syrian group which received accretions from Mesopotamian, Egyptian, Hittite, Amorite, and perhaps other sources. A particular type of modern Jew with the heavy nose and pronounced nostrils is more Armenoid than Mediterranean. The Armenoids with exaggerated so-called "Jewish" noses strikingly resemble the ancient Hittites, whose gods—and hence whose reigning families—had the nose now most typically associated with the Jew of caricature and comic opera. This exaggerated form of the feature cannot, however, be said to occur in the bulk of the Jewish people, though the nostrils are often broad and curved, exposing part of the septum. It is this "nostrility" that is perhaps most typical of the "Jewish" nose.

Like most existing peoples with a record extending back into antiquity, the Jews have long since left their ancestral home and have become mixed with other peoples. They share the phenomena of their dispersal with very many other groups. They are peculiar, though not unique (we may recall the Armenians and Gipsies) in preserving in their dispersal a definite, though fading,

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cultural unity. Among dispersed peoples they are probably unique in their spiritual and intellectual gifts, in the contributions they have made to civilization in general, and to modern European civilization in particular.

In discussing Hebrew origins we must consider whether there are any elements resembling their original stock remaining in their ancient home. The most interesting for our purpose is certainly the small surviving group of Samaritans who now reside only in and around the town of Nablus, the ancient Schechem. Of these there are now only about 100. They form an extremely closed caste whose social relations are jealously guarded. Whatever their origin, it is certain that they are the survivors of a group that has remained on the present site, with a persistent but decaying religious outlook, since at least 500 B.C. They have been profoundly affected by the Arabic culture, by which they have been surrounded for 1300 years. Their speech is wholly Arabic. Physically they are fairly dark, very tall, slightly built, with very variable form of head and face, and prominent finely-formed nose with high bridge. The Samaritans have among them a fair element, for nearly half are blond, and red hair and greenish eyes are not uncommon. Individuals similar to the Samaritans, though usually less tall, are to be found among the Bedawin. The type is also encountered among modern Hebrews, but is decidedly rare among them.

A second regional group of the Cymotrichi is the Nordic. This also is a narrow-nosed group but is distinguished from the Mediterranean group by fair complexion and tall stature. The typical Nordic has a florid or reddish-white skin, straight, wavy, or curly hair of a yellow, light brown, or tawny colour, typically the eyes are blue or grey. The head is mesocephalic with a tendency to

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dolichocephaly, the skull is rugged with strongly marked muscular impressions, the face is long with a prominent, narrow, usually straight nose and a well-developed chin. This is the characteristic type of Scandinavia, it is also common in the north central European plain and frequent in the British Isles

A third regional group consisting of white-skinned, broad-headed peoples were termed Eurasiatic by Sergi. They inhabit the plateaux and mountains that extend from north of the Himalayas, through Asia Minor to the Balkans and the mountain zone of Europe. Of these we can distinguish four main stocks :

1. The group usually termed "Alpine," which is very broad-headed, has chestnut-brown or black hair, hazel-grey or brown eyes. The nose is inclined to be broad and is frequently concave. The stature is medium, about 5 feet $4\frac{1}{2}$ inches, and the body is thick-set. The range of this type is from Russia to central France. The Eastern members are termed Slavs (p 168).

- 2 The Pamir or Iranian type is prevalent from Persia to Manchuria. Its most noticeable character as compared with other Eurasiatics is the abundance of facial hair which varies in colour from brown to light. The eyes are inclined to be light in colour and occasionally are blue. It is doubtful whether this group has influenced Europe to any appreciable extent.

3. The Armenoid or Anatolian type is widely distributed in the near East. This ethnic type is of medium stature, stocky and fleshy. The extremely broad head is high and has a flattened occipital region, the face is broad. The very characteristic nose is prominent, aquiline, and has a depressed tip and large wings. This type was characteristic of the aristocracy among the ancient Hittites, and a noticeable proportion of Jews conform to this type.

4. The Dinaric (Illyrian) type is found on both sides

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of the northern Adriatic, the Illyrian mountain system with extensions to the north and south. Von Eickstedt says the type is prominent in south Poland and in Silesia and to a less extent in other parts of Germany¹. This type is sharply distinguished from the Armenoid in various ways, notably in being slender and very tall and having a long face, but both share the broad high head with a flattened occiput. It is characterized by pronounced brachycephaly, tall stature, dark hair, rather tawny skin, long face, and particularly by the long, narrow, high-bridged, convex nose.

The two following groups, though probably never very numerous, have played an important part in the dissemination of culture in Europe, and traces of their respective types can still be seen among existing populations.

The Prospectors—so called since they are thought to have been largely concerned with early prospecting for tin, copper, and gold—are a recently defined group. Perhaps they were a cross between Mediterraneans and Armenoids that presumably originated in the eastern Mediterranean. They are regarded as having been essentially a trading people. Men of the Prospector type are found to-day in small numbers among various coastal peoples from southern Italy and Spain northwards. There are pockets of them at the mouths of the Loire and Charente, in Brittany, Wales, and other places. The living representatives of the Prospectors—the “maritime Armenoids” of Elliot Smith—are tall, muscular brachycephals (C. I. 82–84) with sallow skin and dark hair and eyes (pp. 159, 196).

The Beaker-folk, the Round-barrow men of Britain, perhaps originated in a cross between Dinarics and Nordics

¹ E. von Eickstedt, *Rassenkunde und Rassengeschichte des Menschheit*, Stuttgart, 1934.

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which took place on the southern border of the European plain. They usually combine the fair coloration and strong growth of the Nordics with the Eurasiatic broad head. In late Neolithic and Early Bronze Age times they spread from central Europe southward and northward, especially to Denmark and England (p 196)

There is an ethnic group in eastern Europe which has been variously termed "Oriental,"¹ including its "Vistulian" sub-group, "East Baltic"² or "East Europide."³ It is characterized as being of medium stature, stocky, with a moderately broad head and a broad, bony, flat face. The skin is fair with a grey tinge, the hair is a faded blond to an ash-blond, the eyes grey or blue-grey. The nose is often upturned. These characters are seen among Finns, White Russians, Ukrainians, Poles, eastern Prussians, and Esths, and are characteristic of the Tavastians of Finland. Most continental anthropologists regard the above peoples as constituting a valid group, but differ as to its significance. Thus von Eickstedt regards it as a "racial" intermediate between north Europeans and Asiatics, but Gunther holds that the whole of central and northern Russia was still in the occupation of Finno-Ugrian peoples in the fifth century B.C. Later they came into contact with Nordic tribes and more especially with "Nordic proto-Slavs". As the Nordic upper layer disappeared these northern Slavs acquired east Baltic characters, though the Aryan Slav language replaced the Finno-Ugrian speech.⁴ Another view is that indefinite

¹ I. J. Deniker, *Les races et les peuples de la Terre*, Paris, 1926, p. 140

² H. F. K. Gunther, *The Racial Elements of European History*, London, 1927, p. 112

³ E. von Eickstedt, loc. cit., pp. 365-75

⁴ *Finno-Ugrian* is a name applied to a family of non-Aryan languages spoken in Europe by the Finns, Esthonians, Hun-

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groups arose in Russia through a mixture of early "Nordic" steppe folk with Ugrians and that some of them became slavized.

We must give some space to the peculiar type of ethnic grouping of which the Jews form the best-known example. Ripley, in his classic *Races of Europe* (1900), concludes by affirming that "the Jews are not a race but only a people after all." We believe him to be right. The Jews can rank neither as nation nor even as ethnic unit, but rather as a socio-religious group carrying large Mediterranean, Armenoid, and many other elements, and varying greatly in physical characters. Like many other groups its members are held together partly by external pressure of various kinds, partly by a long historic memory, partly by a sense of common suffering, partly by a religion. These factors, acting through long ages, have produced a common consciousness which is relaxed when the pressures are relaxed and intensified with the reverse process.

The Jews are essentially a product of their environment in the Roman Empire and in the Christian kingdoms that succeeded it. Before the Captivity they are believed to have numbered some three-quarters of a million. Six centuries later their numbers in the Roman Empire are calculated at between four and seven millions, or about 7 per cent of the population, that is, seven times the percentage found in Germany to-day. Their increase had come about in part through the accession of proselytes.

garians, Lapps, and by tribes in certain parts of Russia. In Asia the language of the Samoyedes, among others, belongs to this group. The element *Ugrian* is derived from Yura or Ugra, the country on either side of the Ural mountains. The Finno-Ugrian languages are generally considered to be a family of the Ural-Altaic group which contains three other linguistic families, Turkish, Mongol, and Manchu (see footnote p. 176).

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Dispersed throughout the Empire from a very early date, they became especially numerous in Spain, in southern Gaul, and along the Rhine. In the East there were large groups in Mesopotamia, Syria, and Alexandria. With the division and fall of the Empire considerable movements took place. In the East the Jews received immense accessions in the seventh century from the Chazars, a people of Turkic¹ origin whose territory extended from the Black Sea to the heart of Russia. In the West we find datable Jewish monuments in Italy from the earliest Christian centuries, and in France from the seventh century. On the Rhine there were Jewish settlements before many of the Germanic tribes were driven westward, and the synagogue at Worms is one of the oldest buildings in Germany. In the Iberian peninsula Jews were in continuous occupation until driven out by the Inquisition in the fifteenth century. In all these localities the Jews received accretions from the surrounding population, and contributed elements to it. At the present time there are about fifteen million Jews in the world. Thus in fifteen hundred years their numbers have only doubled. About ten million now live in Europe, about four and a half million in America, and perhaps three-quarters of a million in Asia. Before the War there were about six million Jews in western Russia. The Treaty of Versailles left about half this number to Russia, the remainder becoming inhabitants of the new states on the western fringe of the Soviet Union—Estonia, Latvia, Lithuania, and reconstituted Poland.

In considering the physical anthropology of the Jews it must be remembered that for centuries they have been subject to a differential selection through being debarred from owning land, forced into certain occupations, and confined to crowded unhealthy ghettos.

¹ See footnote p. 176

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Historically and traditionally two groups of Jews are recognized, Ashkenazim and Sephardim. The former, perhaps 80 per cent. of European Jewry, are found for the most part in Russia, Poland, Germany, and in northern Europe generally. The Sephardim predominate in Mediterranean lands. There are differences in physical characters between the two groups, indeed the Jews vary as much as, if not more than, any people in Europe. Moreover, in every country there are Jewish individuals whose physical characters resemble those of the people among whom they have settled, due no doubt to intermixture. The "Jewish" nose, though generally miscalled "Semitic," is Armenoid in origin, and the modern Jews, if not predominantly Armenoid, certainly exhibit more Armenoid than "Semitic" characters. Nor is this element a matter of the last few hundred years, it began soon after the Israelites established themselves in Palestine. Ezekiel's admonition (xvi. 45), "Thy mother was a Hittite and thy father an Amorite," is probably a fair statement in parable of what was even then happening on a large scale. The "Jewish" nose is said to be present in only about 15 per cent. of adult male Jews in New York City, though in Galicia one observer describes its presence in as many as 30 per cent.

The chief characteristics of the Ashkenazim are round and broad face, short concave nose, and small grey eyes, with inclination to stoutness. Thus physically they are much like the northern Slavs. Sephardim tend to approach the Mediterranean type. They are well represented by the type painted by Rembrandt, with oval face, nose prominent and often thin and shapely, long black hair and beard, large almond-shaped eyes, and melancholy cast of countenance. The Sephardic type is enshrined as the Jewish heroine of romance.

There is an impression that Jews are strongly brunet.

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Dark hair and eyes do in fact exist in a majority, but in certain districts of Poland a very substantial minority, given as from one-third to two-fifths of the Jewish population, are light coloured, while the blondness of Alsatian Jews has long been recognized. Even among the Sephardim there are many blonds. Moreover, there is a strong tendency to redness, most marked in the near East, but very obvious in many western Jews. There is, further, a considerable proportion with light brown hair and blue eyes.

The head-form of the Jews is generally brachycephalic or high mesocephalic in Europe. This is by no means the case elsewhere. In south Arabia (Yemen) they are preponderantly dolichocephals, and in North Africa dolichocephals or low mesocephals. The following table indicates roughly the percentage of different head-forms:¹

	<i>Dolichocephalic</i>	<i>Mesocephalic</i>	<i>Brachycephalic</i>
Daghestan (213) (Caucasus)	5	5	85
Europe (2641)	3	24	73
North Africa (77)	26	44	30
Yemen (78)	72	22	6

In stature there is no uniformity. The wide divergence seems to be partly due to overcrowding and malnutrition. Stature, lowest in Poland and Lithuania—about 5 feet 4 inches—is an inch to 1½ inches greater in south and Little Russia, while in England and the U.S.A. averages of up to 5 feet 8 inches are recorded. We note especially the greater height of English Jews in more favourable conditions as compared with their poorer co-religionists of the East End of London.

Dr. Leland W. Parr (in an introduction to the *Anthropology of the Near East in Ancient and Recent Times*, by

¹ M. Fishberg, *The Jews* (1911), p. 50.

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C. U. Ariens Kappers, Amsterdam, 1934, p 195) finds a high degree of variability in the blood-groups of the Jews, which together with the variable head-form indicates ethnic mixture. The blood-groups of the Samaritans show no affinity to those of the Hebrews.

Having distinguished the main ethnic groups of Europe, we turn now to consider the nations of Europe. To describe the origin and development of those nationalities would be to give an account of European history. We may remind the reader, however, that for 4,000 years and more there have been constant tribal movements in various directions throughout Europe. About the year 800 there was some stabilization of the tribal conditions. This developed into the "Feudal System," under which there was a large amount of tribal fusion. The economic changes of the fourteenth, fifteenth, and sixteenth centuries, with their attendant wars and invasions, broke down this system, and with the sixteenth century, nation-states of the modern type began to appear. Since then there have been many changes of frontiers, but the ethnic movements have been slight.

CHAPTER VII

ETHNIC COMPOSITION OF EUROPEAN NATIONS

It will be advisable to approach the questions arising out of the present populations of European countries from the historical aspect. It is, however, manifest that in the following sketch it is possible to give only the most general outline of the early history of culture in Europe. For the sake of clarity it has been necessary to take a definite line, but we are fully aware that many of the statements are disputable. The very great complexity of the problems involved requires a discussion that is out of place in a book of this sort, but those who wish to gain further information are advised to study the important publications of Professor V Gordon Childe,¹ and also the admirable series, *The Corridors of Time*, by H. J E Peake and H J. Fleure (Oxford, 1927-35)

The various cultures of the Upper Palaeolithic epoch do not concern us, but it must be remembered that traces of the ethnic stocks of that time may even now be recognized in various parts of Europe.

Conditions of life were unfavourable over a considerable part of Europe during the Mesolithic period (Diagram, p. 49), but nevertheless cultural influences appear to have intruded from North Africa and western Asia. Over all northern and western Europe the Mesolithic peoples were poverty-stricken hunters and collectors who used very small stone implements (microliths). So far as the scanty

¹ *The Dawn of European Civilization*, London, 1925, *The Aryans, a Study of Indo-European Origins*, London, 1926, *The Danube in Prehistory*, Oxford, 1929, *The Bronze Age*, Cambridge, 1930.

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evidence goes the people themselves seem to have had long or medium heads, but even at the beginning of this period a few broad skulls have been found—at Ofnet (Bavaria), Furfooz (Belgium), and Mughem (Portugal)—which represent the vanguard of the Eurasiatic spread (p. 149)

As Europe was gradually assuming the geographical conditions with which we are familiar its various regions took on those configurations and climates which have so strongly and differentially affected the mode of life of its various inhabitants. It was at this time that the Neolithic culture with its polished stone implements spread from east to west across Europe and along the Mediterranean.

THE MEDITERRANEAN AREA

In the south the Mediterranean area has a distinctive climate and its three great peninsulas and its islands have since Upper Palaeolithic times been inhabited by a fairly uniform ethnic type, which, however, has received accessions from other groups that stimulated the growth of its several cultures.

In the valley of the Nile, the predynastic Egyptians (a branch of the Mediterranean ethnic group) were a flourishing cereal-growing people as early as the fifth millennium B.C.

The Mediterraneans were a gifted group of peoples who under favourable circumstances developed high civilizations. Those of Egypt, Greece, and Rome are known to all, but there were other civilizations of less renown which are familiar to archaeologists.

The first focus of Mediterranean European civilization was in Crete. Here there is a continuity of culture from Neolithic times with periods of advance and decline. The Cretans created a civilization that was truly European, though it received stimuli from Egypt and Asia Minor. The Mycenaean culture was an offshoot from the Cretan,

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and Cretan influences affected the Aegean and indirectly various parts of Europe. Other Mediterranean cultures played a great part in the cultural history of central and northern Europe

The maritime habit of the coastal and insular Mediterraneans resulted in the diffusion of culture not only throughout the whole of the Mediterranean but also to western and north-western Europe and as far as the western Baltic. The eastern Mediterraneans carried their culture to south-east Spain. That land was rich in metals and early developed into an important cultural centre. Even in Neolithic times the arts of agriculture, pottery, and the making of polished stone tools passed from Spain up the Rhône and thence to Switzerland and north Italy on the one hand and northwards through France to Britain on the other. The Neolithic period was the dawn of the age of metal, but the art of making copper and bronze implements lagged behind other elements of culture in the spread from east to west. The builders of great stone monuments (megaliths), of which Stonehenge is a well-known example, were Mediterraneans who spread from the Iberian peninsula to Brittany and up the western coasts of Britain to the west Baltic.

THE ALPINE ZONE

The central mountain zones of Europe seem from a very early date to have been inhabited mainly by another and very distinct ethnic type, that of broad-headed peoples who are generally admitted to have spread from Asia Minor as soon as the diminishing glacial conditions permitted. These "Alpine" Eurasiatics (p. 149) seem later to have been followed as far west as the Adriatic by the Dinaric group (pp. 149-50), who exhibit some Armenoid affinities.

Gordon Childe considers that the Alpines were not a

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very potent civilizing force in early times, since they borrowed their culture from the Danubian peasants and it was only in so far as they came under Danubian, Iberian, or Nordic inspiration that their civilization progressed.

In the western Alpine region the Alpines came into contact with the local Mesolithic folk (p 189), but the real culture of the early lake-dwellers originated in the valley of the Rhône, though it had its sources in the western Mediterranean.

The eastern Alpines lived nearer to the progressive "Danubian" civilization and occupied a territory rich in metal ore and traversed by important trade-routes. Thus they attained a higher culture than their western kinsmen and became a war-like people.

THE BASIN OF THE DANUBE

The basin of the Danube and its affluents may be divided into (1) an upper section containing Bavaria, Austria, and the eastern half of the Alpine ranges, (2) a middle section which begins at Moravia, extends to the Carpathians, and includes the great plain of Hungary, and (3) a lower section consisting of the gorge known as the Iron Gate and the flat lands reaching to the Black Sea. Both in the Danube valley proper and farther north in Galicia, Silesia, Saxony, and the Rhineland, whither the Danubians spread, the Neolithic peasants invariably settled on the loess and near streams. In the Danube valley they tilled the fertile loess and pastured their herds on the steppe and in the forest glades.

The first phase of Danubian culture is best seen round about Moravia. It is the oldest Neolithic civilization in central Europe. Good pottery with incised designs was made and Spondylus shells for bracelets were imported from the Mediterranean. The peasants multiplied rapidly and increased their range. Farther east, near Vinca,

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the culture was modified by influences from the Aegean area.

The second phase was a specialized prolongation of the former partly overlaid with new elements due to infiltration from the east and south-east, mainly from Thessaly and Troy. It spread through Bohemia to Saxony and Silesia. Meanwhile the earlier culture spread to the Rhine Valley.

In the third phase of the Danubian culture the peasant settlements were overrun by Nordic invaders who used stone battle-axes. Simultaneously Alpine wanderers displaced the Danubians on the Rhine and elsewhere, while from the west came the Beaker-folk, who were warriors and traders. From the south, warriors arrived with copper battle-axes. Influences from Cyprus and the Troad were enriching Hungary, and trade relations spread to Bohemia, which contained the tin essential for bronze and was also on one of the amber trade-routes.

The great achievement of Hungary was the creation of a splendid and original school of metallurgy. For its foundation the Hungarian Bronze Age was indebted to Bohemia. On the technical side Upper Italy contributed its share, while the rich spiral decoration points to influences from Crete and Mycenae. In the Middle Bronze Age the slashing sword was invented to replace the thrusting dagger and rapier of the Mediterranean. It was a more effective weapon for warriors on horseback, and helped to increase the military dominance of the ruling class.

The early Danubian peasants in their gradual expansion had carried with them domestic animals and cultivated plants and diffused the Neolithic arts among their western neighbours. The incursion of nomads prevented stagnation in the north and introduced the Hungarians to the metal tools and weapons invented long before by the Sumerians. Then the Beaker-folk linked the Danube

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commercially with the Aegean, and Trojan metallurgists discovered the tin of Bohemia. Out of these impulses arose a distinctive Bohemian culture, upon which both the Nordic and Hungarian Bronze Ages are based ¹

Who were the Danubians? The evidence seems conclusive that it was they who introduced domestic animals and cultivated plants into central Europe. Since all these were of western Asian origin we may assume that they were brought into Europe by the people who became Danubians.

Peake and Fleure ² say "If our Danubian peasants came from Anatolia we should expect them to be broad-headed like the bulk of the population of that region then and now. Yet the few graves that have been found have yielded skulls which are moderately long . . . [But] the early round-headed populations of central Europe seem to have burnt their dead, and, if this is the case, the burials so far found will be those of foreigners." The presence of long-headed Nordics in the later Danubian population has already been noted (p. 161, see also pp. 180 and 190).

It was the Danubian settlers who actually introduced polished stone implements, agriculture, and domestic animals all over western central Europe as far as Belgium, but by diffusion this culture had a wider distribution. Everywhere the Danubians came into contact with the barbarous Mesolithic peoples. There can be but little doubt that they intermixed not only with these folk but also with remnants of the Cro-Magnon and Predmost-Combe-Capelle and other stocks of the Upper Palaeolithic period, though it is improbable that the cultures of these earlier peoples made any impression upon that which the Danubians brought with them.

¹ Childe, 1925, p. 200.

² *The Corridors of Time*, IV, 1927, p. 150

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Gordon Childe says, "For over two thousand years it [the Danube] formed the channel by which the influence of the higher civilization of the east Mediterranean basin, including Anatolia and Syria, was transmitted to the barbarian north and even distant Britain. By the first millennium it no longer fulfilled this rôle. On the contrary, barbarian destroyers were travelling downstream towards Troy and Macedonia" ¹

Indeed, he goes so far as to say, "In our period [the Bronze Age] it is not possible to point to a single vital contribution to material culture originating in Europe outside the Aegean area." ²

There is reason to believe that the discovery of iron was made in Asia Minor. However, the making of iron tools does not seem to have spread directly westwards to central Europe, but rather the industry appears to have come up the Adriatic to the eastern Alps and thence spread eastward to Hungary.

One early centre of the industry was at Hallstatt in Upper Austria. A later one was at La Tène on Lake Neuchâtel. The Hallstatt culture was to a large extent merely a continuation of the Bronze Age by the same people and under analogous conditions. At first there was no superiority in iron weapons as compared with those of bronze, but iron being a common metal its cheapness enabled a larger number of warriors to be provided with metal weapons. Thus access to iron gave increased facility for aggression and expansion. "It is quite certain that the La Tène culture of the Second Iron Age (from about 450 B.C.) was created by Kelts and carried by them to Britain and Ireland and eastward far across Central Europe." Gordon Childe also says that "despite the upheavals of the Early Iron Age and the Migration Period

¹ Childe, 1929, p. 413.

² Idem, 1930, p. 238.

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one is inclined to believe in a considerable continuity both in blood and tradition between the Bronze Age and the modern populations " ¹

THE NORTHERN AND SOUTH-EASTERN PLAINS

In the south of Russia are steppes which stretch continuously eastward into the heart of Asia. Similar flat lands skirt the Carpathians and extend westward across northern Europe

It has been suggested, but with insufficient evidence, that the folk associated with the Solutrean culture which temporarily spread from Hungary into western Europe in the Upper Palaeolithic period were a branch of the narrow-headed steppe folk of south Russia and eastern Asia. Analogous long-headed people with a microlithic culture seem to have mixed with the impoverished remnants of Upper Palæolithic man on the shores of the Baltic and thus founded the Maglemose culture This was the ethnic sub-stratum of the people of this area.

The earliest inhabitants of the south Russian steppes of whom we have adequate skeletal remains were generally tall, narrow-headed men with narrow noses, but there was a small minority of broad heads in the population. They buried their dead in kurgans (tumuli) and the remains associated with the skeletons in the oldest kurgans show that the people were partly nomadic pastorals with a poor and rude Neolithic culture. It is commonly accepted that these people were early Nordics or proto-Nordics It may be that they spoke an Aryan language.

The mobility conferred on the early Nordics by the horse as well as their restlessness and warlike proclivities enabled them to spread in various directions They made descent upon Troy and raided and ruined the cultured peasant makers of painted pottery in the black-

¹ Childe, pp. 239, 242.

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earth belt of Russia. They also became the overlords of the skilled and artistic metallurgists of Hungary. Successive waves of these ruthless invaders eventually reached Scandinavia, and in their triumphant progress they annexed regions previously occupied by higher types of culture. The story, according to some students, was repeated in Greece by the Achaeans and in Italy by the inhabitants of the pile-dwellings, but there is no reason at all to believe that these peoples were pure Nordics. They were more probably mixed peoples under more or less Nordic leadership. Even the rich culture of the Scandinavian Bronze Age was mainly a repercussion of the Hungarian civilization.

It is difficult to point to any basic element of culture, except perhaps the domestication of the horse, that was originated by the Nordics or their proto-Nordic predecessors. At their first onsets they partially destroyed or inhibited local cultures and then they absorbed them. On the other hand, by their energy and skill in leadership they organized and invigorated the people they had conquered and at the same time they provided a new stimulus which enabled those cultures to advance or take on new forms, and then by their mobility they spread these cultures far and wide.

The Aryan type of language is an exceptionally delicate and flexible instrument of thought and is pregnant with great intellectual and artistic possibilities. As Gordon Childe points out, the physical qualities of the peoples of Nordic type "did enable them by the bare fact of superior strength to conquer even more advanced peoples and so to impose their language on areas from which their bodily type has almost completely vanished"¹ It was only when the Nordic stock was civilized by and mixed with other ethnic strains that the resulting peoples rose to a

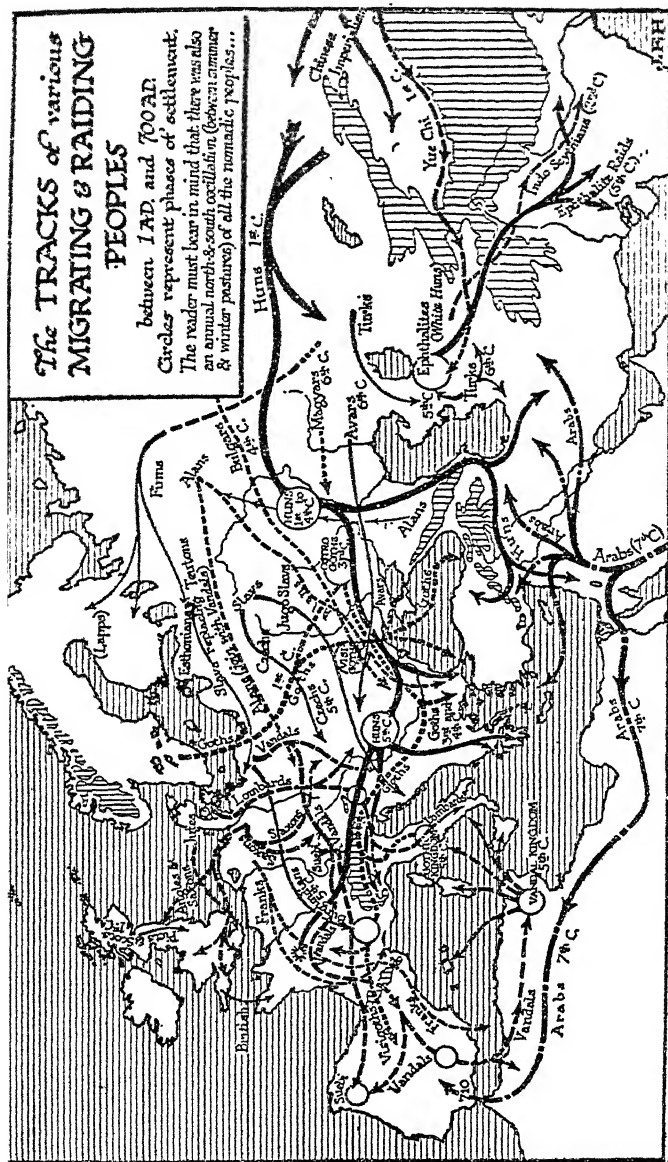
¹ *The Aryans*, 1926, p 212

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higher level than that of the predatory nomadic Nordic tribes. It should also be remembered that the early great civilizations of the eastern Mediterranean, Egypt, Mesopotamia, and north-west India were developed by non-Aryan-speaking peoples.

We may now pass on to consider the ethnic composition of Europe at the present day. Since we are concerned only with existing groups and nations of mankind all of whom are variations of a single species, it is unnecessary to discuss the fossil remains of other human and sub-human genera and species. There is, in fact, no evidence that any of these have entered into the composition of *Homo sapiens*. It is, however, advisable to state the modern position with regard to such forms, each of which, when it was first discovered, was popularly regarded as a "missing link."

If a genealogical tree of the Hominidae constructed by any competent anatomist be examined it will be seen that none of these early men stand in the direct line of ascent to modern man. We must indeed abandon the hope of finding the "missing link." There is no single missing link joining us to the apes, but innumerable forms converge as we go back in time upon the common anthropoid ancestor or group of ancestors. As Sir Arthur Keith has written "In our first youthful burst of Darwinianism we pictured our evolution as a simple procession of forms leading from ape to man. Each age, as it passed, transformed the men of the time one stage nearer to us—one more distant from the ape. The true picture is very different. We have to conceive an ancient world in which the family of mankind was broken up into narrow groups or genera, each genus again divided into a number of species—much as we see in the monkey or ape world of to-day. Then out of that great welter of forms one species became the dominant form, and ultimately the sole sur-



This chart illustrates only some selected major ethnic movements and those only for a short period of history. Any attempt to represent all ethnic movements or movements over a greater time-range would render it even more confused. It was compiled by Mr. H. G. Wells (*Outline of History*, 1920) and drawn by Mr. J. F. Horrabin from details provided mainly by Sir W. M. Flinders Petrie (*Journal of the Anthropological Institute*, xxxvi, London, 1906) and A. C. Haddon (*The Wanderings of Peoples*, Cambridge, 1911).

(By kind permission of Mr. H. G. Wells)

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viving one—the species represented by the modern races of mankind”¹ In the history of fossil animals in general, the chances are heavily against the discovery of the stages in the evolution of any dominant species the same is true of man.

In the preceding chapter we have described the main ethnic groups of Europe. The conception of three main European “races”—Mediterranean, Alpine, and Nordic—which is still commonly held is too simple and has led to erroneous generalizations. The conception remains inadequate even if “types” be substituted for “races.” As a matter of fact in most countries of Europe, besides all three types, there are survivals of ethnic characters that seem definitely to date back to the Upper Palaeolithic age, a period at which these three ethnic types had not been sharply differentiated.

We now turn to a consideration of the main constituent ethnic elements of the various nations of Europe.

THE ETHNIC CONSTITUENTS OF THE COUNTRIES OF EUROPE

It is necessary to point out that the following accounts of the ethnology of the various countries of Europe are merely sketches on broad lines. There are numerous restricted or isolated areas in every country where local complications occur in which ethnic elements other than those characteristic of that country as a whole have played a part. These form interesting problems the discussion of which is beyond the scope of this book.

It will be seen that much of the discussion of the ethnology of Europe turns round the distribution of the peoples designated “Slav.” The word Slav has had a history involving extraordinary mutations of meaning. The early Slavs (like all peoples) applied to themselves a complimentary title. They called themselves *Slovenci*—“the intelli-

¹ *The Antiquity of Man*, 1915 and later editions.

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gible ones" (*slaviti*—to speak) The word survives with the "Slovene" inhabitants of Carinthia. The form *Slav* came to be generally adopted as describing peoples of Slavonic speech. At an early date the Slav-speaking population of central Europe was reduced to a servile condition by conquest and the word "slave," from being first laudatory and then depreciatory, has acquired its modern significance.

The three great popularly recognized ethnic groups, which of course are only characterized by the relative preponderance of one or other of the three main ethnic types (pp. 144-50), are themselves each divisible into a number of varieties. One of these varieties may have formed an element in one country and a different variety in another country or even there may be several varieties of a type within the same country. We have also to bear in mind that in many places there are traces of ethnic types which antedate the three great groupings

It is convenient to begin our description of the inhabitants of the different European countries by considering the great peninsulas of the Mediterranean, since their anthropology and history exhibit varying stages in the penetration of the early population of Mediterranean type from the north. In Spain these immigrants have but little affected the head-form or other physical characters; in Italy the indigenous folk are still to be found over diminishing areas in the south, while in the Balkan peninsula the population has for the most part completely changed in character, the original population in each peninsula having originally belonged to the Mediterranean type or group.

THE IBERIAN PENINSULA SPAIN AND PORTUGAL

The ethnic history of Spain begins with Neanderthal man and since his time there has been a constant succes-

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sion of various types of man, nevertheless there is a considerable uniformity in the appearance of the people.

The average stature in the Iberian peninsula is about 64½ inches, it is highest on the east coast, in most of the Basque country, and in parts of Portugal. The eastern peoples have a lighter skin, whilst the darkest skin occurs in certain areas in the north and in the south and southwest. The fair eyes and hair of the northern half of the peninsula nearer to the Pyrenees and especially in Galicia are ascribed to Nordic origin. Fair hair and blue eyes also occur in east Andalusia, but fair Iberians were recorded many centuries before the invasion of the Nordic Vandals.

The eastern half of the peninsula and Portugal are characterized by dolichocephaly and the Basque provinces and most of the south of Spain by mesocephaly. In Galicia and Asturias, in the north, brachycephalism occurs and again in the extreme south, the former is due to "Alpine" influence, while the latter dates back to remote antiquity.

As might be expected from its position, Spain has frequently been colonized from Africa. In early Upper Palaeolithic times immigrants from Africa brought the Capsian culture and later the Mesolithic. The Iberians arrived from Africa with a Neolithic culture. In classical times the peninsula was colonized by Carthaginians, and in the Middle Ages by the so-called "Moors" or "Saracens," who were predominantly Berbers with a sprinkling of Arabs. All these invasions, though they influenced the culture of the peninsula, had less effect upon the physical type of the inhabitants since the majority of the incomers were members of the Mediterranean ethnic group. Neolithic invaders from the eastern Mediterranean brought the megalithic culture and also the art of working

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metals From the north about the sixth century B.C. came the Celtic-speaking peoples who occupied the north, centre, and west As a result of the coming of the Gauls in the fourth century B.C. the Iberians in south France retreated to the central plateau, where they subdued the Celts and were called Celtiberians In A.D. 409 arrived the first invasion of the Alans, Sueves, and Vandals, and six years later the Romanized Visigoths who in fifty years became masters of the peninsula.

The large Jewish element has been culturally important. Actually many Spanish Jews are of the long-headed Mediterranean type, no doubt as the result of interbreeding, for there is nothing to suggest that they were long-headed when they first reached the peninsula. The same applies to Portugal. A certain admixture of Negro genes has found its way into Portugal by crossing with Negro slaves, these were imported in large numbers, both into Portugal and into the predominantly Portuguese regions of South America.

Among the most interesting ethnic groups of Europe are the Basques—Euskaldunak as they call themselves. Four-fifths of the Basques inhabit the provinces of Spain south-west of the Pyrenees, while the remainder are in the department of Basses-Pyrénées in France. Their total number scarcely exceeds half a million, but they have attracted much attention as a people speaking an agglutinative non-Aryan language, who retained at least until the present century many strange customs, and practise a peculiar but very real democracy which the governments of France and Spain have been unable to destroy

Physically there is no uniformity among the Basques; dolicho- or predominantly mesocephalic in Spain, they are brachycephalic in France. Nevertheless many individuals of both groups exhibit a definite and characteristic appear-

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ance with a long low head, long triangular face, a bulging forehead, and narrow jaw.

We may regard the Basques as including a modified remnant of an Upper Palaeolithic stock which occupied the northern half of Spain long before the arrival of the Neolithic Mediterraneans. It has been suggested that the Basque language represents the speech of the Palaeolithic hunters.

ITALY

We must suppose that in very early times the whole of Italy was occupied by various groups of Mediterranean type, but the ethnic history of north Italy has been very different from that of the south of the Tiber.

In the south there is a fairly homogeneous population of Mediterraneans, especially in Calabria and southern Apulia. The stature is below the medium, the skin usually somewhat brownish, the hair and eyes are black, and the nose clean-cut. The head is moderately narrow, but Albanian and Greek colonists have broadened the head in parts of northern Apulia. The Greek colonists of Magna Grecia were mainly of a Mediterranean type similar to that of the aborigines, though they certainly would have brought a broad-headed element with them, as may be seen in Salerno, but there this may have been due to the Prospectors (p 150). The peoples of Sicily and Sardinia are on the whole similar to those of Calabria, though there are traces in Sardinia of an older stock. The population of Sardinia has the shortest stature of any people in Europe. There has been even more ethnic mixture in Sicily.

The people of north Italy are on an average the blondest and tallest in the kingdom, but are only relatively so, and broad heads are much in evidence. These characters are intensified along the northern frontier and in the remote mountain valleys. In Piedmont the "Alpine"

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element is exceptionally pure, the hair is often light brown and the eyes are to match or even of a lighter shade. Though relatively tall the Piedmontese are some inches shorter than most northern nations. Their physical traits disappear in proportion to the geographical accessibility of the population to intermixture.

Several waves of peoples from central Europe and the Danube area have come into north Italy: in the early Bronze Age broad-headed lake-dwellers arrived in Lombardy from Switzerland, in the full Bronze Age mixed Alpine invaders, Beaker-folk and others from Galicia constructed the *terremare* in Emilia.

According to Herodotus the Etruscans came from Lydia and their origin from Asia Minor is now generally admitted. Thus in the latter half of the ninth century B.C. they imposed a new element of oriental civilization upon the Umbrian culture as well as adding new genes to the population. The many plastic representations they have left indicate, as might be expected, that they were dark-haired. The skulls excavated from their tombs fall into two groups: (1) dolicho- and low mesocephalic, (2) definitely brachycephalic, the former predominating. But whatever were the physical characters of the ancient Etruscans, they have been absorbed into the present-day population of Tuscany and Umbria, and their share in these populations cannot be disentangled.

From Tuscany and Umbria we pass to Rome. The question "Who were the Romans?" has been answered in two entirely different ways. On the one hand, it has been suggested that the patricians and plebeians were of different ethnic origin; the two groups contributed in greatly different proportions to Roman civilization. On the other hand, it has been held that both bodies were of similar origin and that the Plebs were merely the less important members of a political entity which felt itself

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more or less homogeneous, in spite of the original group having been derived from more than one stock ¹

The Ostrogoths conquered north Italy in A.D. 489-493, and in 568 the Langobards settled north of the Po and gave their name to Lombardy. Other "Nordic" spreads followed, but it is remarkable how little trace there now is of these invasions, the average population of north Italy being of medium stature and brachycephalic, the old stock thus reasserted itself. In the neighbourhood of Milan, however, the Nordic element is still to be seen in the relatively taller and blonder physique of the people. In the Veneto the relatively high stature and definite broad-headedness of the population is regarded as an evidence for Dinaric influence (pp. 150-5).

It should be remembered that in countries originally inhabited by dark-haired dark-eyed people, all others tend to be lumped together as "fair," whether their hair is really fair or only medium, whether their eyes are blue, green, hazel, or brown. There is also a common tendency to equate "fair" with "Nordic," and the proportion of Nordics as against Eurasiatics thus tends to be exaggerated. The northern invaders of Italy appear to have been more of Alpine than of Nordic type.

THE BALKAN PENINSULA

Whereas the other two peninsulas are cut off from the rest of Europe by mountain ranges, it is the river Danube and its western affluent, the Save, which form the northern limit of the Balkan peninsula. It is convenient, however, to include in this area that part of Yugoslavia which extends north of the Save as far as the Hungarian frontier. The peninsula thus defined includes Greece, Turkey in Europe, Albania, Yugoslavia, and Bulgaria.

¹ The two views may be traced in Shakespeare's *Coriolanus*, the performance of which, strange as it may appear, has recently given rise to political friction!

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The disordered topography of the mountains of almost the whole Balkan area has much to do with the equally disordered distribution of its mixed population, and helps to account for the bitterness of their animosities. Alike topographically and culturally, the Balkan Peninsula turns its back on Europe, continually inviting settlement from Asia. It is thus no anomaly that conquest and invasion from the East, bringing Asiatic religious and social institutions, should so long have possessed and held the Balkans. The resistance of the rest of Europe to the influence of the Balkans, epitomized in the antagonism to the Byzantine or to the Turk, has thus been as much aided by geography as it was based on culture.

GREECE

Modern Greeks tend on the average to be mesocephalic; the heads are somewhat broader in the north, but narrower heads are prevalent in Thessaly, Attica, and in the islands. They are strongly brunet, less than 10 per cent. have fair hair and about 25 per cent. are blue- or grey-eyed. The mean stature is about 5 feet 4 inches.

Although the modern Greeks are of very mixed origin and include a considerable number of broad heads, there are enough ancient skulls to indicate that the ancient Hellenes were in the main of the usual narrow-headed Mediterranean type. This conclusion is confirmed by the preponderant narrowness of the even earlier (Minoan) skulls from Crete, though even at that time broad-headed folk were coming from Asia Minor to that island.

Before the time of Homer the mainland was overlorded by tall Achaeans who came from northern plains. Much has been made of the supposed "Nordic" affinities of these invaders, who were fair, as compared with the southerners. It is probable that they were largely of steppe origin, but doubtless they contained strong ethnic and cultural Eurasiatic (Alpine) elements.

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During the eleventh century B.C. rude and probably broad-headed tribes, perhaps with Nordic leaders, came from the north and north-west and swept away the Achaean civilization. They were subsequently known as Dorians. In the sixth century A.D. came the Avars and Slavs and from the end of the seventh century there has been a peaceful penetration of Slavs.

TURKEY IN EUROPE

As concerns Europe the term "Turk" implies little more than a particular religious and political allegiance. Mixed Turki tribes came into Asia Minor in the eleventh century A.D. and spread into the Balkan peninsula in 1359.¹ The earlier Armenoid and other inhabitants of Asia Minor were by no means exterminated, for, as Gibbon says, "many thousand children were marked by the knife of circumcision, and many thousand captives were devoted to the service or the pleasures of their masters." It is the descendants of these already mixed Turks, modified by centuries of intermarriage with the European population of the Balkan peninsula, that constitute the European Turks of the present day, so that it is no wonder that in appearance they retain but little of their Turki origin.

¹ *Turki* is an Arabic adjective formed from the word *Turk*. Ethnologists use the word loosely and in several different senses

(a) To designate a *family of languages* which together form a subdivision of the Ural-Altaic group (see footnote, pp. 151-2), other subdivisions being Finno-Ugrian, Mongol, etc. Turki languages are spoken in Turkey proper and in Kashgaria and parts of Russia and have left traces in the speech of the Hungarians

(b) To designate a certain *ethnic group* of which the Turks, the Kirghis, and the Tatars are best known. These peoples contain elements of various origin and are not easily classified by common physical characters

(c) To distinguish *peoples speaking Turki languages* from those who speak languages of Aryan or Semitic type.

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ALBANIA

The Albanians are in part the descendants of the old Illyrians and are noteworthy for the preservation of many archaic customs and of a primitive form of Aryan language. They are all broad-headed, sometimes extremely so, and are inclined to be tall in stature. They are predominantly of the Dinaric type of Eurasians.

JUGOSLAVIA

The largest nation in the Balkan peninsula is that of the Yugoslavs (southern Slavs), who are largely separated from their northern brethren by the Magyars and Rumanians. The southern Slavs are a variable group, of which the Serbs are the most pure. Their fundamental type has dark brown chestnut hair and equally dark brown eyes, and is very broad-headed, having a cephalic index in the neighbourhood of 86. They tend to be tall, especially in the south and west, with an average stature of about 5 feet 8 inches, but there is also a rather shorter, less robust type with fair hair and blue eyes.

The Herzegovinian type has a very broad head, and is rather tall and inclined to be fair.

The Montenegrins are ethnically allied to the Albanians, though Serbian by language.

BULGARIA

Originally the Bulgarians were Asiatics of the Finno-Ugic family who settled on the Volga (whence their name) and in 200-300 A.D. migrated to the basin of the Don and established themselves south of the lower Danube towards the end of the seventh century A.D. They subdued the Slavs in Moesia, but have themselves become completely Slavonized. They incline to be broad-headed, but more so in the west, where a C.I. of 85 is common, than in the east when the C.I. is often as low as 78. There are two

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main ethnic types, the commoner is tall with dark hair and eyes, while the less common is of medium height and relatively fair.

RUMANIA

Rumania consists for the most part of a rich alluvial plain, in contrast with the rugged mountainous area south of the Danube. Though little different from their southern neighbours in physical character, the Rumanians are appreciably different in language. They pride themselves on being descended from the Romanized inhabitants of Dacia, where Trajan settled some 240,000 colonists in A.D. 106. It seems that the colony was dispersed in 257 by Goths and others, and in later centuries the country was overrun by Asiatic peoples. The present nation dates from the thirteenth century. The language spoken to-day has a vocabulary which is 60 per cent. Slav, but there are numerous words derived from Latin and the syntax shows unmistakable Latin affinities. The population is, and probably has long been, mainly of Dinaric type. The stature is medium or tall. The cephalic index ranges from 79 on the Black Sea coast to 85 or higher in the west. The hair and eyes are almost always dark. The nomad Vlach are Rumanian shepherds who live in neighbouring countries, they are of medium stature, often with a white skin and high complexion and usually dark brown hair. There is a very large gipsy element in Rumania, which country can be regarded as the modern centre of this originally Indian people.

CZECHO-SLOVAKIA

Czecho-Slovakia, which includes Bohemia and Moravia, contains, at any rate in the towns and in north-west Bohemia, so many Germans that Prague has had to establish German and Czech universities side by side. In the eighth century B.C. the population of Bohemia was already

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mixed and consisted of Nordics, Eurasiatics, and other elements. This mixture seems to have persisted during the earlier part of the La Tène culture (late Iron Age). Through invasions the Slavs became numerous during the last 500 years B.C., their influx continued for the subsequent half-millennium.

The present-day Czecho-Slovaks are in general broad-headed with a pigmentation from blond to brunet (generally the latter) and a stature of about 5 feet 6½ inches.

HUNGARY

The Magyars, whose language belongs to the Finno-Ugrian family¹ modified by Turki,² certainly came from Asia. They and other tribes passed through Russia and the Ukraine and at the end of the ninth century penetrated into the Carpathians, displacing the Avars and absorbing the remains of the older Hun invaders. They completely dominated the Slavs in the central plain which we now call Hungary, but remained themselves surrounded by a ring of Slovaks, Ruthenians, Rumanians, and Serbo-Croats, against whom they have made no progress for many centuries. It is interesting that they have almost entirely lost the Turki physical features which history showed they once possessed.² This must be due to crossing with their Slav and German neighbours, though the high flat cheek-bones of the Asiatic nomads are still occasionally to be seen among them.

The modern Magyars often have blue eyes and chestnut hair, though they may be very dark in eye and complexion. They have a medium stature of about 5 feet 4 inches, and a cephalic index of about 84. The bulk of modern Magyars are no doubt Eurasiatic Alpines, with some Nordic and a residuum of Turki genes.

¹ See footnote pp. 151-2

² See footnote p. 176

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RUSSIA

Russia is a vast plain with no western or eastern barriers, thus on the European side political changes have frequently taken place and on the Asiatic side the insignificant Ural range has never prevented those invasions of nomadic peoples which have had so profound an effect, both ethnically and politically. In the north and as far south as Perm the country is covered with a coniferous forest which gradually gives way to a deciduous forest, this stretches from Kazan to Moscow and thence to Kiev with southern extensions in favourable places. Thence to the south are grasslands traversed from east to west by the broad belt of the famous "black earth" and loess. North of the Caspian are desert and semi-desert expanses which lead into central Asia.

In the earliest days long-headed steppe nomads ranged over the Asiatic and south Russian steppes and found their way far into Europe (p 164). In Neolithic times they covered their dead with red ochre and buried them in tumuli (kurgans). With them was a small proportion of broad-heads. These steppe folk probably spread over a large part of Russia and the type is now best preserved in Latvia. During the Bronze Age the long-headed folk finally gave way to broad-headed people. The former appear to have been the main progenitors of the Nordics, and have sometimes been termed "Proto-Nordics." The main body of long-heads seems to have passed along the belt of loess and sand hills through the northern plain of Europe to Denmark and thence to Sweden.

It is beyond our scope to give in detail the various Ugrian (pp 151-2, footnote) and other Asiatic peoples who invaded Russia and settled in large tracts of the country. Classified as "Turks" belong the Kirghis around the north and west of the Caspian and the Europeanized Mongol "Tatars" in south Russia. To the "Mongols"

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belong the Kalmuk between the Don and the Volga. The two great Mongol invasions of 1237 and 1239 devastated large parts of the country and were marked by atrocious cruelty.

An infiltration of broad-headed peoples came into Russia from the west through the migrations of Slavs from the region of the Carpathians. There is no uniform Slav type, as the Slavs cannot be described as an ethnic unity, but there can be no question that at base they are Eurasiatics and they may be regarded as a branch of the Danubians (pp. 160-4).

It is essential to appreciate the relatively recent spread into Russia of these Eurasiatic broad-headed people whom we now call Slavs. Even in the ninth century the Slavs had occupied no more than about a fifth of the area of Russia west of the Ural mountains. Eastward their territory extended no farther than 37° E, indeed, the beginning of Russia as a nation was due to Ostrogoths who descended from the Baltic to the Black Sea in the eighth century A.D. In 862 Slavs about Lake Ilmen near Novgorod invited the chiefs of these fierce and well-disciplined warriors, who were called Varangs, to govern the country.

Ignoring the present-day Asiatic or semi-Asiatic population groups in Russia, the Russians proper are divided into three groups

1. The Great Russians who occupy the north, centre, and east of the country.
2. The Little Russians or Ukrainians with Kiev as their centre.
3. The White Russians who occupy the flat, swampy, and heavily forested area about Minsk and parts of what are now Lithuania and Poland, including the area of the Pripyet marshes.

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Russia presents a remarkable uniformity of physical type which is unparalleled for so vast an area. There is a low brachycephaly with an average cephalic index of 82 for the whole country with very small local oscillations in either direction, the range is from 80 in Smolensk to 85 on the borders of Poland. The Little Russians have an average stature of 5 feet 6 inches and a darker complexion than the Great Russians, who are somewhat shorter. The Great Russians are mostly of the characteristic Moujik type with a squarish face and heavy features, reddish-blond hair and orange-brown (the so-called "beer-coloured") eyes. These in the main are the Muscovites of history. The White Russians are the fairest of the three groups and also are of medium height. They seem to represent a less mixed type of Slav that has remained comparatively sheltered in its unattractive country. It may be presumed that Mongolian genes have spread westward in increasing dilution into eastern Prussia.

FINLAND

The south and centre of Finland is inhabited by Tavastians and the east by Karelians. The restless Kwaen in the north have been influenced by the Lapps, who formerly had a wide extension but are now few in number and are restricted to the extreme north. Swedes inhabit Åland and most of the coastal lands and islands. The occupation of the Baltic seaboard by Nordics dates from the fifth century B.C. and doubtless they modified the ethnic characters of the early Finns. The civilized Swedes migrated to Finland at a later period.

The Tavastians were, about 500 B.C., the first of the Finno-Ugrian¹ movements into north Europe and they spread into what is now Esthonia, where they expelled most

¹ See footnote pp 151-2

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of the original Letts. The Karelians moved in the rear of the Tavastians and have retained more of their original ethnic characters. The Tavastian has a rather broad head and broad face, concave nose, fair complexion, and frequently light hair and mostly blue or grey eyes; they are thickset and have a medium to tall stature. The Karelian has a less broad head and a lower stature and generally darker hair.

ESTHONIA

The Esths have reddish-flaxen hair, blue eyes, and a cephalic index of 79. They have a medium stature, but there is a tall element among them. They are closely related to the Tavastians.

LATVIA AND LITHUANIA

The Letto-Lithuanians tend to be of medium height, but taller where remote from Slav influence. They are preponderately fair, with blond hair and blue eyes. The cephalic index is about at the limit of dolichocephaly towards mesocephaly and the face is long. They speak the most archaic of the Aryan languages and were the last people in Europe to accept Christianity (in the thirteenth century).

POLAND

Poland, while linguistically affiliated with Russia, received its civilization and religion from the Latin West rather than from Byzantium. Fleure writes "In western Poland the peasantry are Polish [Slav] for the most part, the townsfolk are Jews and Germans with a few Poles, and the aristocracy until 1914 was to some extent German. Farther east the aristocracy was Polish and largely anti-German, the peasantry Polish, and the intermediate people still largely German and Jew. Farther east still the middle

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class of the towns continued the same general character, but while the aristocracy was Polish, the peasantry was Lithuanian or White Russian or Ruthenian, according to district.”¹

The combined evidence of archaeology and ethnology shows that during the Neolithic period there were two very distinct ethnic types which have left their traces to the present day, the more common being “proto-Slav” (Vistulian, pp 151–2), but of comparatively dark pigmentation in its existing representatives, the other being a very narrow-headed type. Broad-headed Alpine types prevailed in the Bronze Age, the earlier being the Beaker-folk. In later times many of them were of the tall, dark Dinaric stock with a prominent nose. Later still were various Nordic migrations. The Jewish population, which forms about 10 per cent of the whole, has large Armenoid, smaller Mediterranean and some Turkic² and other elements (pp. 151–5). On an average the present population is distinctly broad-headed and of medium height, with a tendency to grey eyes and dark hair.

SCANDINAVIA

According to de Geer the site of Stockholm was covered with ice only 9000 years ago. It was not until much of Scandinavia was ice-free—some 5000 years B C—that long-headed Mesolithic man reached Scandinavia from the south and accumulated the middens along the coast, but Bryn has found in the Tydalen district, south-east of Trondhjem, traces of what is evidently an Upper Palaeolithic Cro-Magnon type³. Later the advancing Nordics coalesced with the remnants of these people and subsequently passed into Sweden.

¹ *The Peoples of Europe*, 1922, p. 65

² See footnote, p. 176.

³ *Ymer*, 1921, p. 299

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The ethnic element most characteristic of Scandinavia is the Nordic type which is best represented in the interior valleys of Norway and in the central provinces of Sweden. An average Swede of this type is tall, 5 feet 7 inches or more, with a moderately narrow head, cephalic index of about 75, and a long face, a fair ruddy complexion, fair hair, and usually a straight nose. Soon after 500 B.C. Nordic people settled in the Norwegian fjords and began that phase of piracy for which, as "Vikings," they became notorious.

Along the coastal area of western and south-western Norway there are broad-headed broad-faced people, on the average darker and inclined to be shorter than their neighbours. They are recognized as being of Alpine or Prospector stock and their arrival may date from very early times, for even in Sweden in the Stone Age there was an appreciable number of broad skulls.

In the north, a broad head associated with lower stature and darker skin is prevalent which indicates admixture with Lapp and Finn. There is also a dark element in the eastern border districts, as these people are tall and long-headed they cannot represent a mixture with Lapps, but they may be regarded as remnants of a Stone Age people.

The northern part of the Scandinavian peninsula is occupied by Lapps, who if they have exerted little influence on the general physical type have provided the background of many a folk-tale, as they formerly had a wider extension than now. They are of short stature, broad-headed (cephalic index, 83-85) with a short broad face, often a concave nose, and occasionally oblique eyes with the epicanthic fold (p 99). Their skin-colour is yellowish, with a florid tinge, and their hair dark brown to black. They speak a Finno-Ugrian language¹ and are

¹ See footnote, pp 151-2

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of that Asiatic group generally called "Palaeartic" and thus constitute a Mongolian element in the population.

In Denmark the population is mixed. In average stature (5 feet 6½ inches) and form of head it resembles that of the north European plain of which the country is an extension. As a whole the Danes are darker than the Swedes or Norwegians, the stature is greatest where the eyes and hair are lightest, and lowest where they are darkest. The earliest inhabitants of Denmark, the late Mesolithic men of the middens, were apparently long-headed. On these were imposed the earliest Nordic immigrations. In the Stone Age there was a much higher proportion of round skulls than in Sweden, due to Alpines and Prospectors. We know that brachycephals (Borreby type) of the Beaker-folk stock lived in Denmark towards the end of the Neolithic period and we may assume that they, too, crossed over to southern Scandinavia.

The immigrations into Scandinavia of "Nordics" have given rise to much discussion and speculation. We may think of two chief waves of these invasions in terms of the two great gods of Scandinavian mythology, Thor and Odin. The cult of Thor is certainly ancient, though it persisted into the latest period of Norse paganism. One in five of the pagan immigrants to Iceland bore a name of which Thor formed a part. All his traditional attributes are early, almost primitive. He either walks or drives in a chariot drawn by goats, he wields hammer or axe, and is never allowed sword, horse, or coat of mail. Odin on the other hand is more advanced in equipment and is especially the god of royalty, perhaps indeed a royal ancestor. He is at the same time Lord of the Underworld or at least that part of it to which are borne the souls of valiant warriors. He is associated with horse and spear and is generally represented as full of guile, the inventor

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of poetry, skilled in magic and all forms of cunning.¹ Odin, in fact, seems to represent the leader of a late band of invaders, perhaps only a few hundred years B.C. or even later.

GERMANY

A glance at the map shows that Germany is divided geographically into two very different areas. The northern is uniformly flat and constitutes the western portion of the great Eurasiatic plain, while the southern is a mountainous country.

There is some evidence that the Cro-Magnon and the Combe-Capelle-Predmost types form an ancient element of a part of the German people. To these, and perhaps to other, Aurignacian stocks, must be added Mesolithic folk. The Danubian Neolithic peasants came into contact in Germany with the hunting and collecting Mesolithic Tardenoisians, as did probably also an advance wave of steppe nomads. Later spreads of the latter from south Russia, who in their northern home are termed Nordics, occupied the northern plains. The southern highlands have always been held in force by Eurasians.

During the Neolithic and Bronze Ages there were in Germany various groups of predominantly Nordic type with distinctive cultures of their own. Of these some passed into Scandinavia to return as the climate deteriorated at the end of the Bronze Age, c. 350 B.C. These people became Goths, Gepids, Langobards [Lombards], Burgunds, etc. The later Slavic migrations seem by the ninth century A.D. to have spent their force somewhat east of the Elbe, being checked by Charlemagne along a fortified frontier. This stretched as an irregular line roughly from the eastern side of the base of the Danish peninsula southwards somewhat west of what is now Berlin, so that in the Middle Ages

¹ Miss B. Phillpotts, *Cambridge Medieval History*, Vol. II, p. 480.

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Slavic dialects were spoken at Kiel, Lubeck, Magdeburg, Halle, Berlin, Leipzig, Dresden, and Vienna. Prague is only about 50 miles east of the longitude of Berlin and is 100 miles west of that of Vienna. Breslau, Vienna, and Brno, the chief modern centre of Czech speech, are on the same longitude. In spite of the Slavic retreat eastwards, Czech has always been and still is spoken nearly as far west as Berlin and much farther west than Vienna.

The ethnic character of the Germany of to-day is very largely what might be expected from the age-long mutual infiltration of Nordic and Eurasiatic peoples. In north-western Germany, Schleswig-Holstein, Hanover, and Westphalia, the physical characters of the population approximate to those of Scandinavia and especially resemble the mixed type encountered in Denmark. East of the Elbe Nordic features become less common and less pronounced and skulls become broader. In the south, Baden, Wurtemberg, and Bavaria carry a definitely round-headed population, essentially Eurasiatic in physique. A line drawn from Breslau in the east through Dresden and the city of Hanover to Cologne, so as to divide the uplands from the plains, comes close to dividing the two main population-groups, the typical Eurasiatic and the predominantly Nordic. But such diagrammatic treatment does not take account of the admixture of types continually and everywhere proceeding. When Eurasiatic and Nordic intermingle to form a mixed ethnic group, as has occurred in most parts of Germany, the broad skull-form of the Eurasiatics seems to occur with disproportionate frequency as compared with other characteristics. Whether this is due to Mendelian dominance (p. 65) or to some selective advantage, or to other causes, is not known. The fact, at any rate, appears to be well established, as it is attested by so acute an observer as Fleure: "Intermixture between Nordic and Alpine stocks

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has spread the dominant broad-headedness of the Alpine over most of what is now Germany, but it is often combined with characters derived from the Nordic side . . . This spread of broad-headedness may be thought of alongside of the spread of modified High German and of the spread of southern rulers like the Hohenzollerns northwards, and it will then be seen how, in many ways, the south has permeated the north in more modern as well as in more remote times.”¹

It has already been pointed out (pp. 106–7) that blood-group A is distinctly western European and blood-group B is Asiatic and it is interesting to note that the relative proportion of the B group with respect to A in Berlin and Leipzig is higher than in the Rhineland, and in Westphalia it is higher on the east side of the Elbe than on the west side, in these cases the greater proportion of B is due to the large Slav or Eurasiatic element in the populations.²

Actually, as might be expected, intermediate types of head-form and hair-colour are frequent, while “disharmonism” in which the broad Alpine head is associated with the long face of the Nordic—or less often the reverse—is by no means rare. These disharmonisms represent certain rarer classes of the Mendelian recombinations generated by crossing (pp. 69–70).

AUSTRIA

In Upper and Lower Austria and Salzburg the average population has a medium stature, 66 inches, very short people are infrequent. The skin is mostly fair, the hair is more often dark than light, the eyes are frequently light. Pure light and dark types are everywhere in the minority

¹ H. J. Fleure, *The Peoples of Europe*, 1922, p. 42.

² L. Lattes, *Individuality of the Blood*, translation by L. W. H. Bertie, 1932, p. 201.

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compared with the mixed type. The light type increases in numbers from east to west, and the dark decreases from south to north. In Lower Austria light-haired people are taller, in the two other districts they are shorter than the dark-haired. Brachycephaly is everywhere in the majority, the average cephalic index is nearly 83 and may go up to 89. Mesocephals are found sparsely everywhere; the number of them decreases from east to west, but again increases to the west of Salzburg.

A tall brachycephalic type (Dinaric) occurs in south Austria with a stature of about 67 inches, cephalic index 81-86, dark hair and a narrow straight nose. In the Austrian Tyrol, the broad-heads are numerous in direct proportion to the increase in geographical altitude, the broad valleys opening north having received some Nordic immigrants and those to the south immigrants of Mediterranean stock. In many places a disharmonic type is found, a long face being associated with a broad head.

SWITZERLAND

The old Alpine type that came to Switzerland from the east in the Mesolithic period still persists. Much later Helvetian, Burgundian, and other more or less Nordic tribes came as conquerors from the north. As a result of the blending of these two contrasted types a disharmonic type is occasionally found with a broad head and a rather long narrow face. The French language in the west and the Italian in the south-east, the Romansch, a modified Latin language, in the east and various dialects of old and modern German elsewhere are witnesses of extraneous influences. Nevertheless there is a very real national consciousness. This little people, with their love of freedom, their intellectual ability, and their commercial acumen, have made their mountainous and somewhat poor country an important international centre.

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The darkest hair and eyes are found about Lake Geneva and along the south and over the eastern part of the country, relatively fair peoples occur in the centre and north. The stature is medium and varies around 5 feet 4 inches. Certain distributions are difficult to explain, as, for example, the blondness in the Oberland. The cephalic index is fairly uniformly broad-headed with an average cephalic index of 86 in the north and of 88 in the south.

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The population of this corner of the northern plain where the Rhine finds its outlet to the sea is inevitably mainly of German ethnic and linguistic affinities, but there is also a contrasted ethnic element. Broad-headed people with broad faces, brown hair, and shorter stature predominate in the south and west of the Rhine and are of Eurasiatic (Alpine) affinity of very long standing. Extremely broad heads are common in the islands of Zeeland, and must go back to ancient times. The broad-headed people with blue or grey eyes of the north-east may be of Slavic origin. The general average of the cephalic index for the Netherlands is 79.5.

BELGIUM

Though Belgium is a small country, nowhere else in Europe can a correlation of geological and geographical structure, language, and ethnic types be observed in a form so simple as to be almost diagrammatic. A line running east and west, a little south of Brussels and north of Liège, divides Belgium into a northern low-lying portion and a southern upland region. In the north the language is Flemish, which is close to Dutch, while in the south the Walloons speak an archaic French language. The Flemings are largely blond, with longer narrower heads (C.I.

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79), longer noses, and taller stature than the Walloons (C I. 82). Limburg has the narrowest heads (C I. 78) and Luxemburg the broadest (C I. 83). Hainault (C.I. 81 4) has the most brunets and also the shortest inhabitants; it is only in the eastern department that Walloons are found in the plains.

The markedly broad-headed population of the Grand Duchy of Luxemburg is very homogeneous and is of pure western Alpine type.

FRANCE

In spite of the famed fertility of her soil, France is not everywhere a garden. The mountains of Savoy, the *massif centrale* of Auvergne, almost an outlier of Savoy cut off by the fertile Rhône valley, and Brittany are all areas of relative sterility and of refuge. The flat land in the north leads directly to the northern plains of Europe. The sea on three sides has laid France open to maritime invasion. Migrations from the south have entered France east and west of the Pyrénées. Thus it is that the ethnic history of France is to a large extent an epitome of that of Europe.

All the Stone Age cultures are well represented. Remains of Mousterian man have been found as well as several types of *Homo sapiens* of the Upper Palaeolithic Period, as, for example, Combe Capelle and Cro-Magnon in Aurignacian times and Chancelade in the Magdalenian phase. The carriers of Tardenoisian (Mesolithic) culture came from North Africa through Spain to France and beyond. In Neolithic times there were several distinct types of man, and later immigrants brought in their several cultures. Most of these ethnic movements have left their impress on the present population.

Broadly speaking, a belt of mesocephaly extends along the main axis of fertility from Flanders to Bordeaux which

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is due to various overland invasions by Nordic tribes. A strip of Mediterranean mesocephals fringes the Mediterranean coast and extends some way up the valley of the Rhône. The relatively narrow heads found in parts of Charente and Dordogne are attributed to a persistence of an Upper Palaeolithic folk. As might be expected, the three blocks of high lands, as well as the Vosges and the Ardennes plateau, are occupied by broad-headed people. Much of this brachycephaly is extreme, averaging 85 to 88 in central Auvergne and parts of Savoy. Particularly in Auvergne, it is accompanied by a high degree of brunet characters. In Brittany the brachycephaly is fading out.

The average stature of the French is about 5 feet 6 inches, but relatively tall statures occur in the north-east area. History informs us that the north and east have been subjected to Teutonic (Nordic) influence. Thus the plains of Burgundy are peopled by a tall but broad-headed stock, whose stature can be traced to the Nordic Burgundians, welcomed and settled by Rome in the fifth century A.D., while their broad-headedness seems to be an expression of the general tendency to the "dominance" (alluded to p. 198) of the Eurasiatic (Alpine) brachycephaly over Nordic dolichocephaly.

In the Dordogne district, especially around Limoges, exceptionally short statures are frequent. This is not an ethnic feature, as several stocks are implicated and it can only be attributed to unfavourable conditions of existence. In recent years the stature has greatly increased owing to improvement in the food and hygiene of the people. This region is especially interesting, as it contains vestiges of several Upper Palaeolithic stocks.

Other areas of particular interest are Brittany, Normandy, and the cantons of the Pyrénées, the latter being the home of the Basques who have been described on page 171.

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The French Basques have distinctly broader heads than the Spanish Basques.

Brittany contains a mixed population which retains traces of a Cro-Magnon stock and of the later Prospectors. Alpines then occupied the area and long before Roman times Nordic rovers arrived by sea and later Nordic peoples occupied much of the coastal zone. The average stature of the peninsula as a whole is low, about 65 inches, but it is appreciably lower in the cantons of the interior. In this case the dwarfing is not due solely to an unfavourable environment but it has an ethnic significance. The name of Brittany was derived from immigrants from Cornwall in the fifth century A.D. to the Dinan district, whither they migrated under pressure from the Anglo-Saxons. They brought their Celtic speech with them. Some Saxons followed them and these may be responsible for the characteristics of the present-day inhabitants, who are said to be taller, lighter, narrower-nosed, and longer-headed than their neighbours. A Celtic language is still spoken in Brittany.

Normandy is one of the blondest parts of France with a maximum of long-headedness near the mouth of the Seine. The Norman face tends to be long, the nose high and thin, contrasting in these respects with the Breton. These characteristics are easily explained by the early Saxon coastal settlements and the later Norman conquest of the area.

GREAT BRITAIN AND IRELAND

Maps of the distribution of physical characters in Europe show that the high average of long-headedness in the British Isles is equalled only by Norway, Sweden, and the Iberian peninsula, but the latter has no significance in this context. To a lesser degree the same comparison between Scandinavia and Britain holds good for tall stature, though the English as a whole are notably shorter than the Scots,

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while nowhere in the British Isles are brunet traits as rare as in Scandinavia. There is a broad contrast between Britain and west and central Europe in these characters.

There is great uniformity in the average cephalic index, it being about 77-79, the extremes varying from about 66 to 87

Speaking generally, the shortest average stature (66-67 inches) occurs in Wales and in parts of south central England. In parts of East Anglia and Yorkshire and most of Scotland the average stature varies from 69 to over 70 inches.

The peoples with lighter-coloured hair and eyes are found mainly in the eastern half of Britain and those with darker coloration in the western margin. The darker individuals are also usually somewhat shorter, but there are many exceptions, as for example in parts of western Scotland, where darkly pigmented types are found with a distinctly tall stature. Indeed, there are many local variations in stature and pigmentation which are due to different ethnic stocks that have come into the country at various times, though a general mingling of peoples renders the task of disentangling them peculiarly difficult.

There is no evidence that Palaeolithic man of the older Palaeolithic periods has in any way entered into the composition of the British, whose ethnic history appears to begin with Neanthropic man of the Upper Palaeolithic periods. We may accept it as established that a type which occurs in the Plynlimon moorland and elsewhere in Wales is directly descended from an Aurignacian Eurafrian stock, characterized by C.I. 71-74, very long head, with a moderate vault, prominent occiput, receding forehead, prominent glabella, broad nose, a tendency to prognathism and medium stature of about 66 inches. Doubtless there were other long-headed ethnic stocks of which no trace can

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now be recognized in the living population, among which may have been the bearers of the Mesolithic culture

During the Neolithic period various migrations brought new ethnic types and cultures into Britain. The great stone monuments (megaliths) were built by or under the influence of traders and colonists from the Iberian peninsula. This culture-spread is known as the "Atlantic civilization." The "Windmill Hill" (Wiltshire) type of pottery came from France and slightly later the "Peterborough" ware was brought from the Baltic by long-headed people who buried their dead in long barrows.

Towards the close of the Neolithic period Beaker-folk (p. 150), from east central Europe, brought a new and virile ethnic type to the eastern coasts of Britain, whence they spread over England as far as Wales. These people were fairly tall, 67 inches, and muscular, they had broad heads (C.I. 80-84), rugged features, prominent brow ridges, and a strong nose of moderate width. If we may judge from their survivors, they often had fair hair and light eyes. They introduced the beaker, or drinking-cup, into Britain—hence their name. They also introduced round barrows for their interments, but they frequently utilized the existing long barrows. In North Britain a shorter people of Alpine stock, also brachycephalic but with smoother skulls, were responsible for the "short cists," which are so common in Aberdeenshire.

Settlements were made on the western coasts by the Prospectors (pp. 150, 159) who came in quest of copper, tin, and gold. Their original home seems to have been in the eastern Mediterranean. The type is dark-haired and broad-headed, but it lacks the prominent brow ridges of the Beaker-folk. In the wake of the earlier Beaker-folk the bearers of the Bronze Age culture arrived by way of the Rhine. Towards the close of the period there was an invasion that entered at the Thames and ultimately reached

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Ireland The invaders, who brought with them leaf-shaped bronze swords and the art of building pile-dwellings, seem to have been driven from the western Alps by warriors armed with long iron swords

Later a feeble wave of the First Iron Age (Hallstatt) culture reached the southern shore of England. The more general use of iron was introduced into Britain by tall, stalwart, mesocephalic invaders who came down the Rhine and through northern Gaul, bringing with them the La (Tène Second Iron Age) culture and a Celtic language. Swarms of Celtic-speaking peoples overran the greater part of the British Islands and the Heroic Age of Ireland was characterized by the La Tène culture. The last of these invasions was that of the Belgae.

Except perhaps locally, the Roman occupation probably had little influence on the ethnic composition of Britain, in any case there were few new elements that they could have introduced

The Angles (whom strangers called Saxons), the Jutes, the Danes, and the Norwegians were of mixed origin, though the Nordic stock preponderated. The Norman conquest resulted more particularly in the imposition of an aristocracy of Scandinavian origin which had mixed with the inhabitants of northern France, themselves largely of mixed Nordic-Alpine origin

Subsequent small immigrations of Flemings, Walloons, Germans, Huguenots, Jews, and others have made valuable contributions to the culture of the British Islands, but without any marked physical effect on the population as a whole.

From its geographical position Ireland has not had so complicated an ethnic history as England, though in very early times it was within the highway of the "Atlantic civilization." Subsequently its wealth of gold attracted invaders. The frequency of light eyes and of black hair, the two often combined, is very characteristic. Blondes are

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most numerous in eastern Ireland and brunets in the west. The stature is moderately tall, average 67 inches. The skull inclines to be long, low, and narrow with prominent cheek-bones. There is a large pre-Celtic element in the population.

CHAPTER VIII

EUROPE OVERSEAS

ALL Europeans are not to be found in Europe. It has been estimated that in 1929 there were in the world 642 million persons of unmixed European stock, of whom 478 millions were living in Europe. The remainder, 164 millions, were living outside Europe, and, with the exception of some 13 millions in Asia, they were situated overseas from Europe. Only four hundred years ago all Europeans, numbering probably less than 100 millions, were to be found in the continent after which they are called. Thus the overflow of Europeans into other continents falls within recent history. Indeed, far the greater part of the exodus has taken place in the last hundred and fifty years, almost in our own day and under our own eyes; and the expansion of Europeans in numbers (they have multiplied more than six times in three hundred years), coupled with their extension in space, has been one of the outstanding features of modern world history.

Many of the territories into which the Europeans overflowed were so sparsely peopled by their native inhabitants as to have been, for all practical purposes, empty. There may have been about a million Indians in America north of the Rio Grande, about 150,000 aborigines in Australia, and about 60,000 Maoris in New Zealand when Europeans first settled in those countries. These primitive peoples were easily pushed aside, and with the exception of the Maoris have greatly diminished in numbers. On account of the fact that, again with the partial exception of the Maoris, they have played no part in the building up of the communities which now inhabit these areas, they can be

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disregarded in what follows. The case is otherwise in regard to South America and in South Africa. There the native population was more dense and could not be swept aside. The total population of South America is in the region of 80 millions, and of that number only about 30 millions are estimated to be of unmixed European stock. In the Union of South Africa there are under 2 million Europeans and about 6 million non-Europeans. From the point of view of the study of Europeans outside Europe, it is clear that the former regions offer more interesting evidence than the latter, and it is upon North America, Australia, and New Zealand that attention will be concentrated in what follows.

If the early history of Europeans in Europe is veiled in the mists of ancient history, that of Europeans outside Europe is, relatively speaking, as clear as daylight. But it is by no means as clear as a statistician with modern standards of accuracy could wish. Figures hardly exist before the beginning of the last century. In spite of their holdings of territory in North and South America, the movement overseas of Spanish, Portuguese, and even of French, was not large in amount during the seventeenth and eighteenth centuries. Ferenczi has estimated the emigration from the British Isles to the New World at half a million in the seventeenth century and a million in the eighteenth century. The only other European country which contributed substantially during the eighteenth century to the growth in population of the New World was Germany, which seems to have sent some 200,000 persons overseas.

After the end of the Napoleonic wars, during which there was very little movement, we begin to get figures collected both by countries of emigration and of immigration—port statistics, passenger statistics, passport and permit statistics, and so on. All this material has been subjected recently to careful examination. It is surprising to find how closely

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the figures collected by the countries of emigration agree with those collected by the countries of immigration; the latter record having received $55\frac{1}{2}$ millions between 1820 and 1924, while the former record having sent 50 millions between 1846 and 1924. Since there was little movement between 1820 and 1846, the discrepancy is no doubt mostly due to omissions on the part of countries of emigration, which would be less likely to keep accurate records than the countries of immigration. But even in the figures of the latter there must be considerable omissions, and it is safe to put the total movement at more than 60 millions. Many of those who went overseas, however, whatever their intentions when they left, did not stay permanently, but returned sooner or later to Europe. In other words, the difference between gross and net movement is large. How large it is is impossible to say, it is supposed that between 1821 and 1924 nearly a third of the immigrants into the United States, and between 1857 and 1924 half of the immigrants into Argentina, returned home. The main facts about the movement as a whole are shown in Table I. The figures refer to gross movements and, of course, since they give absolute figures, do not bring out the large part which some countries have played in relation to their relatively small populations. Thus Sweden, relatively to its population, has sent much larger numbers overseas than have certain other countries, such as France.

<i>Country</i>	<i>Emigration</i>	<i>Period</i>	<i>Numbers in millions</i>
United Kingdom	.	1864-1924	17 0
Italy	.	1864-1924	9 5
Austria-Hungary	.	1864-1924	4 9
Germany	.	1864-1924	4 5
Spain	.	1864-1924	4 3
Russia	.	1864-1924	2 2
Portugal	.	1864-1924	1 6
Sweden	.	1864-1924	1 1

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		<i>Immigration</i>	<i>Numbers in millions</i>
		<i>Period</i>	
<i>Country</i>			
U S.A .		1821-1924	33 1
Argentina .		1857-1924	5 5
Canada . .		1821-1924	4 5
Brazil . .		1821-1924	3 8
Australasia .		1853-1924	2 2

Table I. European Overseas Migration, from "Modern Migration," by I Ferenczi, *Encyclopaedia of Social Sciences*

In order to show how the populations of the more important overseas countries of European origin were recruited, it is necessary to amplify these facts. We may begin with the United States. An estimate of the constitution of the white population in 1790 puts the percentage of inhabitants of British origin as 81.4, next came the Germans with 7.4, and the Dutch with 3.3. Thus the white population was then overwhelmingly British and almost wholly of north-western European origin. There were also about three-quarters of a million Negroes. The importation of slaves was prohibited in 1808, and since that date there has been little immigration of Negroes, their increase to the present total of twelve millions is therefore almost wholly due to natural increase¹. But the increase of the white population from just over three millions in 1790 to nearly 109 millions in 1930 has been partly due to the arrival of newcomers from overseas. Up to 1890 three-quarters of the new arrivals came from northern and western Europe; there was, however, a shift in the relative importance of the contributing countries in this region—the inhabitants of Great Britain contributing less, and those of Ireland,

¹ It should be remembered that in the U S A. the term *Negro* is used to denote all persons with any Negro ancestry. Accordingly the present "Negro" population will include the products of all crosses between white and black, and will contain a considerably greater proportion of "white" genes than the original Negro population.

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Germany, and Scandinavia more, than in colonial days. Immigration from this source has become known in the United States as the "old" immigration in contrast to the "new" immigration from southern and eastern Europe. In 1896 the "new" immigration rose to 57 per cent. of the total, and between 1900 and 1914 it accounted for about 75 per cent. of the total. After the War the "new" immigration resumed its importance until all immigration into the United States came under drastic restriction.

The final shape assumed by this immigration legislation is of interest here because it fixed an annual "quota" of immigrants from each European country. The Act of 1926 laid down that the quota "shall be a number which bears the same ratio to 150,000 as the number of inhabitants in continental United States in 1920 having that national origin bears to the number of inhabitants in continental United States in 1920." It therefore became necessary to determine the "national origins" of the inhabitants of the United States in 1920 in order to operate the Act. This difficult task was entrusted to a committee under the chairmanship of an officer of the Bureau of the Census. It was, of course, impossible to allot a national origin to each member of the community, since there has been much intermarriage between persons coming from different European countries. What was done was to assess the percentage contributed by each European country to the population as it was in 1920. The labours of the committee thus provide the most authoritative summary of the present composition of the population of the United States. The results reached by the committee are set out in Table II, which also gives for comparison an estimate of the situation in 1790.

It emerges from a study of this table, which must be taken not as accurate, but as the best approximation to the facts that is available, that, whereas Great Britain and Northern Ireland together with Holland have lost, and France has

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Country of Origin	Percentage Distribution		Country of Origin	Percentage Distribution	
	1790	1920		1790	1920
Gt Britain & N Ireland	77 0	41 4	Sweden	0 5	2 1
Germany	7 4	16 3	Norway	0 2	1 5
Irish Free State	4 4	11 2	Czechoslovakia	0 1	1 8
Holland	3 3	2 0	Portugal	0 1	0 3
France	1 9	1 9	Spain	0 1	0 2
Canada	1 6	4 3	Poland	—	4 1
Belgium	1 5	0 8	Italy	—	3 6
Switzerland	0 9	1 1	Russia	—	1 8
Mexico	0 7	1 2	Others	0 3	4 4

Table II. National Origin of the White Population of the United States, from W S Thompson and P. K. Whelpton, *Population Trends in the United States*, p 91. (McGraw-Hill Book Co.)

stood still, every other country has gained in respect to the proportion contributed to the make-up of the American people. Nevertheless the countries of northern and western Europe taken together contributed about three-quarters of the ancestry of the population of 1920; moreover, the Act of 1926 is intended to keep this proportion permanent, and thus this composition is likely to remain much as it is now for some time to come, unless altered by a differential birth- or death-rate.

It is quite impossible to say how far mixture between members of different European nationalities in the United States has gone on account of intermarriage. It is therefore impossible to return any answer to the interesting question how far any area is largely or predominantly peopled by persons of unmixed descent—how far, that is to say, there are areas which we might call little Italy, little Sweden, or little Poland. But we do get information at each census concerning the distribution in the United States of the

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foreign-born by the countries of their birth. From this source we learn that a far larger proportion of foreign-born whites, than of native-born whites, are found in cities. This means that the new arrivals tend rather to infiltrate the existing population of cities than to populate new areas. But if the distribution of the foreign-born over the divisions of the country is studied, we find a distinct tendency for arrivals from certain European countries to settle in certain divisions. Thus there is a high concentration of Italian and Russian foreign-born in the Middle Atlantic States; this is almost equally true of the southern Irish and the Poles. The German foreign-born are more widely spread and are found in highest concentration south of the Great Lakes. The Scandinavian foreign-born go further afield; they are scarce in the Middle Atlantic divisions, rather more frequent in the Great Lakes section, but most highly concentrated west of the Great Lakes, in Minnesota, for example. But to say that the members of any one European nation are highly concentrated in one section of the country does not mean that they necessarily form a large proportion of the inhabitants of that section. Indeed, this is seldom so, and therefore we cannot speak of New Italies or of New Swedens.

The next of the new European overseas communities to call for attention is the northern neighbour of the United States. So far as early history goes we are better informed about the population of Canada than about that of the United States. In 1666 a count was made of the immigrant inhabitants of New France. They totalled 3215 persons. This count has good claim to rank as the first true census. It was more or less regularly repeated for a century, and in 1754 there were over 55,000 persons enumerated in New France. When Canada passed into the hands of the British, these enumerations lapsed, and for the next hundred years the figures for population and migration are very

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meagre Moreover, the figures for oversea movements into Canada are without much significance on account of the large movements of population across the southern frontier; and about these continental movements we are poorly informed

There are available, however, official estimates of the composition of the population of the Dominion of Canada, and they are given in Table III for the years 1871 and 1931. At the earlier date the British accounted for about 60 per cent. and at the later date for about 52 per cent. of the

Country of Origin	Percentage Distribution		Country of Origin	Percentage Distribution	
	1871	1931		1871	1931
English . . .	20 3	26 4	Indian and Eskimo	0 7	1 2
Irish . . .	24 3	11 9	Negro .	0 6	0 2
Scottish . .	15 8	13 0	Italians	—	0 9
Other British	0 2	0 6	Polish	—	1 4
French . . .	31 1	28 2	Scandinavian	—	2 2
Dutch . . .	0 9	1 4	Others .	0 3	8 0
German . . .	5 8	4 6			

Table III. National Origin of the Population of Canada, from *International Migrations*, Vol II, p 135 Edited by W F. Willcox. (National Bureau of Economic Research, New York)

total But during these sixty years the proportion of the English increased, the decline in total British percentage being due to a recession of the Irish and Scottish There is visible, as in the case of the United States, some tendency towards an influx from southern and eastern Europe in the last few decades. That feature of the composition of the Canadian population which chiefly distinguishes it from the American is the large part contributed by France.

During the last century and a half the French element of

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the Canadian population has received hardly any access of strength through immigration. It has increased almost entirely through excess of births over deaths, and nevertheless it has managed nearly to maintain its relative position in the composition of the whole population of the Dominions, although the non-French element has been considerably reinforced by migration movements. The French element in the population is remarkable not only for its size but also for its localization. The French are found in an area which includes the province of Quebec and some adjacent territory. Few non-French live in this area and few French live outside it. It is a solid block of persons whose ancestors were born in France. There is no parallel to this degree of localization anywhere else in the New World. Outside French Canada there seems to be even less localization of European elements than in the United States, and this is presumably due to the large continental movements across the whole length of the international frontier.

Turning to Australia we have a fairly good record of the growth of population from the first settlement of the country. We can watch it increasing from some 5000 in 1800 to its present total of over six and a half millions. To-day 98 per cent. of the population is white. It is generally estimated that 90 per cent. of the white immigration into Australia has been from Britain, but we have no very extensive knowledge of the composition of the white Australian population at the present day. An estimate has been made for 1891 based on the census of that year; since that time the English have become proportionately more, and the Irish proportionately less, represented in the total. Europeans other than British now contribute to the Australian population at least 10 per cent., and perhaps a little more. As to New Zealand it is only necessary to say that we have an even better record of the growth of population,

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and that about 95 per cent of all white immigration into New Zealand has been from Britain.

<i>Country of Origin</i>	<i>Percentage Distribution</i>
England	53 0
Scotland	13 0
Ireland	23 0
Wales	1 5
Germany	5 2
Scandinavia	1 9
Other Europeans	2 4

Table IV National Origin of the Population of Australia in 1891, from *The Peopling of Australia*, edited by P D Phillips and G L. Wood, p 147. (Macmillan & Co)

In this manner there have grown up distinct new European communities overseas. Community is a non-committal word and no one will be likely to quarrel with it. The next step is to inquire in what ways these communities are distinct, that may enable us to apply to them a descriptive term which has more content. To begin with we may ask what evidence there is of distinctness in relation to such physical characteristics as can be measured; and in this particular quest we can confine our attention to the United States. It has a longer history than the other communities, and there is more information available of the kind that we require, in fact such physical distinctness as there is in the new communities should be more evident and easier to detect in the United States than elsewhere.

We may select for notice two recent and very careful investigations. The first had as its subject-matter the recruits for the American army during the Great War. The recruits were measured in respect to height, weight, eye-colour, hair-colour, and other physical features, and the facts were exhaustively tabulated. Some measurements were made on as many as two million men. When this material is examined we find no evidence that these young

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men, fully representative of the new community, conform in any way to a distinct physical type. Out of this material there does not arise any picture of an average American distinct from the average inhabitant of England or Germany. The second investigation is due to Hrdlička, who examined a sample of what he calls the "Old Americans." By an "Old American" he means an American whose "ancestors on each side of the family were born in the United States for at least two generations." The material used in this investigation had in fact an American ancestry of an average length of some hundred and fifty years. This most laborious piece of research shows that these "Old Americans" are very variable and do not constitute any easily defined physical type (see p. 82). But Hrdlička believes that, taking them together, they are distinguished from the Americans around them to a very slight extent in respect to certain physical peculiarities.

When interpreting this kind of evidence it is necessary to bear certain facts in mind. A new physical type based on a distinct genetical constitution could arise either through the elimination of some elements in the community, through the preservation of new mutations, or owing to the results of intermixture (new recombinations). But the history of America is so short that there has hardly been time for any of these processes to produce a new genetical type. It is not to be expected that any marked result of this kind would have come about as yet. We must also remember that some of the physical characters concerned, and in particular stature, are known to be modified by environmental influences. Height, for instance, does not depend only upon the genetical constitution but also upon food, exercise, and perhaps climate. These things being so, we might well expect to find that the Americans are on the whole taller than, or in measurable particulars different from, Europeans, as the result of the influence of the

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American environment All we do find are some rather doubtful, and at the most very slight differences between "Old Americans" and all Americans. But this is no evidence of the emergence of an American genetical type. The "Old Americans" have persons belonging to the "old" immigration as their ancestors, and moreover have all been reared in the United States exposed to the full pressure of American modes of life, and the slight differences observed are easily explicable as a consequence of these facts.

This line of investigation does not lead to any significant results The distinctness of the Americans does not lie in the fact that they exhibit any peculiar physical characters. But that conclusion does not dispose of the possibility that their distinctive achievements may be due in another way to genetic factors The investigation of this matter comes more appropriately later when we have discovered what it is that does distinguish them from other communities. And this is not a difficult quest. It is indisputable that the Americans constitute not merely a community but also a nation It would not be possible to find a better example of what we mean by a nation than the United States. Americans have ways, customs, and manners, quite as distinct as English, French, or German ways. Their approach to and outlook upon matters of daily concern are peculiar to them, and in this field they differ more from any European nation than European nations differ from one another. All these characteristics are very uniformly spread over the whole country, Americans are very conscious and proud of them There is no more instructive or interesting experience than to watch the development of the American-born children of foreign-born immigrants. The children vie with one another in casting off all traces of foreign influence, they throw off all their old clothes, so to speak, and haste to put on full American dress.

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If we wish to attempt to reach somewhat greater precision in defining the peculiarities of American nationhood, we may perhaps find some help in an approach to the study of society which is employed by some sociologists. They distinguish between the social process, civilization, and culture. By the social process they mean the evolution of social structure which seems to follow some definite direction. The Americans may be said to have pushed this process a step further forward in the direction of the emergence of the individual. By civilization is meant the application of mechanical arts to the problems of daily life; the most obvious and best-known fact about American life is that Americans have led the world in civilization as so defined. By culture is meant something more intangible, it includes the literary, artistic, and aesthetic traditions and backgrounds to life, it embraces the scheme of values. The most striking fact about the American nation is that it has shed so much of the traditional European culture. Opinions differ as to the nature and form of that which is taking its place. But it remains true that we might in this sphere contrast America with Europe, regarding the European nations as sub-nations, that is as communities with a lower degree of distinctness.

If Canada, Australia, and New Zealand are not yet nations of the same degree of distinctness as America, they are clearly nations in the making. The reason for the absence of such definite peculiarities as characterize the Americans is that they are younger. But the end is not in doubt; they will also become nations, and there are signs that, while they will differ from any community in Europe, it is a mistake to suppose that they will show any very close resemblance to the United States. Nor does it by any means follow that, when they arrive at maturity, they will decide to sever all formal bonds with Great Britain. It is true that most fully developed nations strive

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towards sovereignty; but that is not because nationhood implies sovereignty but because satisfactory methods of co-operation between nations under a common sovereignty have not yet been evolved.

The European overflow to empty countries overseas has thus been followed by a process of nation-building, and the existence of nations, both on account of their specific achievements and of the difficulty of harmonizing their aspirations, is one of the fundamental facts of the world to-day. In order to know what we may expect in the way of further achievement and how we can hope to harmonize these efforts, we must understand what nations are. The building of nations under our eyes ought to provide an answer. The nature of the answer has already been indicated by the fact that, when attempting to describe national peculiarities, we have been compelled to use language which implies that the process is essentially in the nature of a response to a challenge from certain new and peculiar circumstances. These circumstances are manifold, but space does not permit even the beginning of an attempt to enumerate them and to work the suggestion out. There is space only to deal with the view that in the development of the new nations importance must also be attributed to certain constituent "racial" elements present among those who participate in the response.

We have already referred to the absence of any evidence to the effect that in America a new "racial" type is evolving, and that therefore nation-building is in some part a result of genetic evolution. The other view, noticed above, rests upon the supposed importance of certain "racial" types evolved long ago in Europe and present among modern Americans. In particular attention has fastened upon the "Nordic" element in the American population, and it has been asserted that the energy, leadership, and creativeness, which has shown itself in the response to the

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American challenge, can be traced to this element. It is very difficult to deal with assertions which are seldom accompanied by evidence that can be examined, and the difficulty is especially marked in this case. There is one investigation, however, which has been much quoted in this connection. During the War recruits to the American Army were subjected not only to physical but also to intelligence tests. When classified by country of origin, those coming from England were found at the top of the list, and in general those from northern and western Europe showed the best results. This is regarded by some as evidence of the superiority of the "Nordic" strain. But the evidence is worthless. Putting aside the fact that the English are not "Nordic," it is now admitted by the authority who was responsible for the tests that the methods employed were faulty, and the claim that the results have any validity has been withdrawn by the expert who had much to do with the investigation.¹ Among the facts which are not compatible with the hypothesis of the manifestation of "Nordic" superiority in the United States, we may note that Hrdlička found that there were more round-headed than long-headed persons among his "Old Americans," and it is to the "Old Americans" that we must attribute the important initial impulse to the formation of the American nation. Again we may observe that the "new immigrants" from southern and eastern Europe are largely concentrated in the cities of the east of the United States,

¹ See especially C. C. Brigham, "Intelligence Tests of Immigration Groups," in the *Psychological Review*, Vol. XXXVII, pp. 158-65 (Princeton, 1930). On p. 165 he writes "Comparative studies of various national and racial groups may not be made with existing tests. . . . In particular one of the most pretentious of these comparative racial studies—the writer's own—was without foundation." All scientific men are not as frank and straightforward in acknowledging the errors which all must make.

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and that it is there, and not on the land and in the west, that modern American enterprise is most fully developed.

In relation to the matter under discussion the story of the French Canadians is instructive. We have referred to them as the one example of a definitely localized group of people in the New World who are descended from the immigrants of one European country. What characteristics do they show? Anyone who travels among them discovers that he is in France of the eighteenth century. They have retained and jealously guard the language, religion, ways of life, and outlook of their ancestors who left France two hundred years or so ago. They are far less touched by Americanization than most countries of Europe. A round of the bookshops in Quebec will show the enduring hold of the older European culture. How can we explain this? It is not difficult to transfer ourselves back in imagination to the situation in which the French found themselves when Canada was ceded to England. They must have desired to preserve and maintain that offshoot of France which had taken root so successfully in its new surroundings, and they were given the opportunity to do so. A little later they watched their relatives at home experimenting with Liberty, Equality, and Fraternity, and the longer they watched, and the more they observed of the consequences of the experiment, the less they liked it. Thus they were encouraged to draw a cordon round themselves, first to protect themselves from anglicization and later from modernism. In some such way as this we may explain the history of French Canada, and whatever defects and omissions there may be in the explanation, no "racial" theory will give any help. The stock from which the French Canadians sprang has shown itself to be anything but conservative. Indeed, France has taken the lead in many European movements. The conclusion to which we are driven is that under certain circumstances the members

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of a stock will be ready to experiment and to shed tradition, while under different circumstances it will resist novelties and remain tenacious of old ways

When we attempt to explain the growth of new European communities overseas into nations—a process which is certainly one of the most important events in recent history—we can discover no evidence of the influence of “racial factors” More than that, any “racial” theory makes difficulties and often leads to absurdities On the other hand, we find that an explanation on the lines of response to peculiar and changing circumstances meets with no serious obstacles, though the detailed working out of such an explanation demands immense knowledge and a very balanced judgment The significance of this conclusion lies in the fact that this is the only example of nation-building about which we have detailed information of a statistical nature That nations have recently been built in this way is no proof that they have always been built in this way. But it certainly creates a strong presumption that this is the general nature of the process of nation-building. If so, then national achievements and characteristics have little to do with “racial” factors.

CHAPTER IX

CONCLUSION

OUR survey has ranged far afield, and has at times unavoidably strayed into technicalities. It seems worth while to make an attempt to bring together the scattered threads, and to see what more immediate, everyday bearing our conclusions may have.

"Racial problems" are among the urgent actualities of twentieth-century politics. But as soon as we subject the concept underlying them, that of *race*, to dispassionate analysis, it turns out to be a pseudo-scientific rather than a scientific term. In other words, its use implies an appeal to the accuracy and to the prestige of science, but on investigation it turns out to have no precise or definable meaning. Further, like other pseudo-scientific terms, it can then readily be employed to rationalize emotion, and to bolster up the appeals of prejudice, by giving it a meaning to suit the context.

The term "race" is currently used in several quite different senses. In the first place, it is used to denote one of the major divisions of mankind—black, white, yellow, and brown. Secondly, it is used to denote the actual human material of a particular country, group, or nation and its biologically transmissible characteristics: for instance, even the most ardent upholders of the Nordic theory cannot mean by the "British race" anything more than the actual inhabitants of Great Britain and their descendants overseas. Thirdly, it is used to denote a hypothetical "pure race" which is taken to have existed in the past and later to have become contaminated by admixture with foreign elements. This, for instance, lies behind the idea of the "Germanic

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race." Fourthly, it is sometimes used as equivalent to a recognizable or supposedly recognizable physical type, as Arab, Irish, etc. Fifthly, it is occasionally applied to a local population which by reason of isolation, or supposed isolation, has become or is supposed to have become fairly uniform and stable in physical type—for example, the "Cornish race." Sixthly, it is also sometimes used in a wholly inadmissible sense to denote the peoples who speak a certain type of language. for example, in such a phrase as "the Aryan race," the "Latin races "

On all these uses, scientific analysis, backed by the results of modern genetics, throws a pitiless light. It is probable that during the early evolution of our species, it became divided up into geographical varieties, each more or less isolated from the others, and each evolving so as to become adapted to its climatic environment. The black variety adapted to hot climates, the yellow variety to dry conditions, and the white variety to north-temperate latitudes, are the most prominent examples.

Such varieties would then correspond to the "geographical races," or *sub-species* as they are now generally called, to be found in many animal species. If we wish to retain the term *race* for such groups, they should be called "primary races." However, since the term race has been largely abandoned in zoology, and since in anthropology it is used in such a confusing multiplicity of senses, we had better employ the term *primary sub-species*. But—and this cannot be too strongly emphasized—such primary human sub-species are entirely hypothetical, a matter of inference only. Man's incurable and increasing propensity to wander over the face of the globe had effected a thorough mixing between the hypothetical primary sub-species long before the dawn of the historic period, had blurred the sharpness of their outlines and in some cases made it all but impossible to deduce their original type.

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A typical white man is very different from a typical Chinese or a typical Negro. But white is connected with black and also with yellow through every gradation of type, and in each case along several distinct main lines of crossing. Again, the simple classifications which at first suggest themselves all break down at one or another point. For instance, the Australians, though deeply pigmented and undoubtedly primitive in many ways, show the same character of hair as Europeans. We cannot with certainty assign them to a definite original sub-species. No single scheme of classification, in point of fact, has been devised which will provide a satisfactory pigeon-holing for the various human types in existence.

It is here that genetics steps in. The modern study of heredity, based on Mendel's great discoveries, has shown that after a cross between two distinct strains, blending inheritance, such as used to be assumed by anthropologists, does not occur, but that all kinds of different combinations of the original characters of the two stocks are brought into being. This is due to the fact that hereditary transmission is by means of discrete living particles, called *genes*, which reproduce themselves, and can be recombined in the most various ways.

Accordingly, if two primary sub-species meet and mix, their characteristics may be combined in their descendants. Originally, black skin might invariably have gone with flat nose and thick lips. That, however, provides not the slightest reason why it should always do so. After a cross with a stock with light pigmentation and delicate features, the combination of dark skin and delicate features may occur. Since dark skin is an advantage in low latitudes, such a new combination of characters has, it appears, been favoured in several instances of actual crossing, notably, for instance, in India.

Similarly yellow skin and a round head seem to have been

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originally associated. But the two become uncoupled with the greatest facility after crossing with strains possessing different head-form and skin-colour.

Another result of the existence of definite genes as the carriers of hereditary constitution is that after a cross the resulting population will not tend to a mere average between the two original ingredients, but will, in the absence of social or natural selection, continue to produce a great diversity of types, generation after generation. There is not the slightest tendency for the population of Britain to become all medium brown in hair-colour, nor for that of Germany to become all medium long in skull-shape. In each generation black and yellow hair, long and round heads, continue to be produced, and to be produced in about the same percentage of the population.

It will now be clear why no single scheme of classification can satisfactorily pigeon-hole all known human types, or even deduce without danger of error the number and characteristics of the original "primary races" of man. Whereas in the evolution of animals there is a constant branching, each branch being permanently isolated after a certain degree of differentiation by becoming incapable of fertile crossing with other branches, in man the branches constantly meet and unite and produce new types of shoots. The conventional ancestral tree may have some advantages for representing the descent of animal types; it is wholly unsuitable and misleading for man. Further, while, in general, animal types can be reasonably classified on the basis of using degrees of resemblance to indicate degrees of relationship, no such simple scheme will serve for man. In fact, with a species in which intercrossing of divergent types is so prevalent as our own, *no* simple system of classification can ever be devised to represent the realities of the situation.

Theoretically, we could give a scientific description of

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human groups by means of the frequency distribution of the different hereditary factors or genes which they contain, and the correlations denoting the tendency for the different genes to be allocated. This, however, is at the moment a mere ideal (save for the blood-group genes) and is never likely to be fulfilled except for the genes responsible for a selected group of well-marked physical characters. In the absence of this, we are driven back on measurable physical characters: here again we must content ourselves with the frequency distributions and inter-correlations of various well-marked characters to be found in particular groups. Our picture of the human species will be like a contour-map, a region of high frequency for, say, round-headedness being separated from another similar peak by a "valley" of low frequency; the gradients in frequency will, of course, vary in different directions. Furthermore, the contour-map for one character will not necessarily resemble that for another.

These considerations rob the terms *race* or *sub-species*, as applied to existing human groups, of any significance. All existing groups must have owed a great deal to crossing. It is only when a group has been relatively isolated for long periods that it will, under the influence of selection, have achieved much stability. Such stabilized groups may be called "secondary races," but they are extremely rare, and their formation must have taken immense periods of time.

In most cases it is impossible to speak of the existing population of any region as belonging to a definite "race," since as a result of migration and crossing it includes many types and their various combinations. For existing populations, the word *race* should be banished, and the descriptive and non-committal term *ethnic group* should be substituted.

With regard to the separate types which can be

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distinguished within an ethnic group—for instance, the tall fair-haired Nordic type, the medium-statured, round-headed Eurasiatic type, the short, dark-haired, long-headed Mediterranean type—it has been suggested that these might perhaps be called “racial” types, and be taken to represent originally “pure” stocks which have later crossed with each other. They would then represent further geographical subdivisions of the original “primary sub-species” of man. However, such a supposition begs a number of questions. Above all it presupposes that these hypothetical stocks once existed in a state of complete or almost complete genetic purity. There is no concrete evidence for this, and indeed much evidence to show that mixture has been proceeding not merely during the historic period, but back far into prehistoric times. It is more probable that even six or seven thousand years ago, such groups only represented points of high frequency for certain characters on the ethnic contour-map, and had already suffered much crossing with other groups. Race has so many connotations—of homogeneity, of purity of descent, and so forth—that it is undesirable to use it where we are not certain of our ground. Accordingly it is better to resort to a non-committal term like “ethnic type” or “genetic type,” rather than “racial type.” In so far as the different types were once geographically isolated, they may be called “secondary sub-species.”

A given region of Europe is thus populated by a highly mixed ethnic group in which a number of distinct ethnic types and the products of their intercrossing are to be distinguished. The ethnic types are to be found more sharply defined and in relatively high concentration in certain areas—for instance, the Nordic type in parts of Scandinavia and the Mediterranean type in parts of southern Italy. There is perhaps some reason to suppose that in earlier times they existed in higher concentration and less genetic impurity,

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but never wholly undiluted or free from crosses with other types. The past populations of such regions would thus represent partial geographical differentiations of the human species, of a kind rather different from anything found in animals. Their later intermixture produces wholly new combinations of characters, which may become stabilized as new "ethnic types"—a process apparently without any parallel in other organisms.

Before proceeding further, there are one or two other popular fallacies to be noted. One is the misconception that a "race" is a collection of people all descended from a single original couple. This idea seems to spring largely from the family trees beloved of genealogists, in which a family is traced back to a single founder and his wife. Such family trees in reality trace the descent of a name, and have little to do with biological heredity—they are social, not genetic, documents. On the genetic plane, the idea of descent from a single couple is in any case vitiated for man by the amount of intercrossing which has taken place between groups. Our ancestry will diverge as well as converge as we trace it back. With animal evolution, in tracing back the pedigree of a group you will, it is true, find convergence of separate branches (species, genera, etc.) to a common stem. But this is not the same thing as convergence to a common ancestral pair, and as a matter of fact we can be certain that the common stem is always a large body of individuals, with a certain degree of genetic variability. Change in evolution does not take place through the sudden appearance of a new sport in a single couple, who then become the ancestors of the new species or strain; it occurs by means of the spread of mutant genes through the population. The evolving strain is the whole population of a given area.

Another and even more serious misconception is that language is any criterion of "race." There are a great

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many examples in history of a conquering people forcing its language on the conquered, and also a great many examples of the converse process, of the conquering invaders adopting the language of the country they have invaded. It is thus quite improper to speak of the "Celtic race." There is a group of Celtic-speaking peoples, but the fact of their all speaking Celtic is no proof of common descent or genetic affinity. Similarly there is not and cannot be such a thing as an Aryan race, since the term Aryan refers to language.

This fallacy with regard to language is a particular case of a similar fallacy with regard to social culture in general. Habits, traditions, machines, dress, art, institutions, gestures, ideas—all these as well as language are part of the social environment of human beings. They are not inborn, but have to be learnt or built up by experience. None of these can serve as any criterion of racial affinity between peoples. For instance, if we had nothing to go by but specimens of machinery and other material objects, we might conclude that the modern Japanese were much more closely related to the Europeans than to the Tibetans or other Mongol peoples. We should, however, be wrong. Culture, both material and spiritual, can spread by culture-contact, whereas physical characters can only spread by actual intercrossing.

Nor can the cultural level of a people serve as evidence of its innate ability or the reverse. The ancient Romans, perfectly correctly, regarded the inhabitants of this country and of Germany as uncivilized. They would have been considerably surprised to find them leading the way in civilization a mere fifty or sixty generations later. In ancient Greece, some very eminent philosophers went further and ascribed to the northern "barbarians" an innate incapacity to rise to the attainments of the Greeks. They were confusing cultural level with innate capacity.

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The rapid rise of Arab culture to a high intellectual level and its subsequent fall and stagnation is another example. We must ourselves beware of falling into the same fallacy as regards the so-called "backward peoples" of the modern world.

On *a priori* grounds we may expect differences in innate ability to exist between different peoples. But achievement by itself is no guide; and so far no satisfactory method has been devised of testing differences in innate intelligence or other psychological qualities between peoples with very different education and culture. The differences in social environment override the differences in genetic equipment.

Finally there is the fallacy which equates "race" with "nation." Here again there is confusion between a genetic and a social concept, but the case demands special treatment because of the special dangers inherent in this particular fallacy. The most obvious way of demonstrating that it is a fallacy is to consider the United States of America. There is, very definitely, an American nation, whose nationalism has indeed been growing more pronounced during the last few decades, but equally definitely, there is no possibility of speaking of an American race. Rather the popular phrase so often applied to the United States of America, *the melting-pot of race*, displays the true situation. All great nations are "melting-pots of race," but America affords the most obvious example. A nation is a group of people with a common tract of country, bound together in a common State by common history, common sentiment and traditions, common social organization, and usually (though not always, as, for example, Belgium or Switzerland) by common language. It is also bound together by being the unit to which the individual belongs, so that he regards other individuals belonging to the same unit as in some way allied with him, while individuals belonging to other similar units are "foreigners," in

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some way alien to him. This sense of solidarity with conationals and of separateness from other nationals is of the essence of nationality. The nation, however, is a particular phase in the evolution of human groups, not anything permanent or inherent in human nature. It is in essentials a product of the last three hundred years, and quite different in nature and organization from other units of the same general type, such as clan, tribe, city-state, or empire. The idea of the "blood-tie" has been used to strengthen national sentiment because of the importance of such sentiment for unity and effectiveness in war. But mass-migration and military conquest, and the adoption of foreigners into the group by legal change of citizenship and by marriage, when the wife and children follow the father's nationality, make the thesis of common descent impossible to uphold. The idea of a British, a French, a German, or an Italian "race" is a political fiction, and a dangerous one at that.

Coming down from the general to the particular, we can here deal with two so-called "race" problems which are of immediate political importance—the Nordic and the Jewish. Beginning with the latter, we find that the Jewish problem is far less a "racial" or genetic than a cultural one. The Jews are no more a distinct sharply marked "race" than are the Germans or the English. They are originally of mixed descent. During their dispersal they have interbred with the surrounding populations, so that a number of genes derived from the immigrant Jews are scattered through the general population, and the Jewish communities have come to resemble the local population in many particulars. In this way the Jews of Africa, of eastern Europe, of Spain and Portugal, and so on, have become markedly different from each other in physical type. What they have preserved and transmitted is not "racial qualities," but religious and social traditions.

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The Jews do not constitute a definite race, but a society forming a pseudo-national group¹ with a strong religious basis and with peculiar historic traditions. Biologically it is almost as illegitimate to speak of a "Jewish race" as of an "Aryan race."

The Nordic theory is in another category. Instead of ascribing racial qualities to a group which is to-day essentially held together on a cultural basis, it takes a hypothetical past "race," ascribes to it a number of valuable qualities, notably initiative and leadership, and then, whenever it finds such qualities in the mixed national groups, ascribes them to the Nordic elements in the population. It then goes further, and sets up as a national ideal a return to purity of Nordic stock.

The facts of the case are as follows. The Nordic race, like other human races, has no present existence. Its former existence, like that of all "pure races," is hypothetical. There does, however, exist a Nordic type. This occurs with only a moderate degree of mixture in parts of Scandinavia, and is also to be found, but much mixed with other types, so that all intermediates and recombinations occur, in northern Europe from Britain to Russia, with pockets here and there in other countries. On various grounds we can be reasonably sure that this distribution is the result of the invasion of Europe by a group largely composed of men of this type—perhaps in the degree of purity in which the type is now found in parts of Scandinavia. This group was the "Nordic race"—a secondary sub-species in our sense. It is not certain where it originated or when its important migration took place, but most authorities believe that it came originally from the steppes of southern Russia.

.. But besides these facts and deductions, there exists what one can only characterize as a Nordic myth, ascribing to

¹ See note, p. 83

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this "Nordic race" most of the great advances of mankind during recorded history, and asserting that their qualities of leadership fit them to rule over other races. The Aryan and Germanic myths are variants on the same theme.

These contentions appear to be based on nothing more serious than self-interest and wish-fulfilment. In the first place, it is quite certain that the great steps in civilization, when man learned to plough, to write, to build stone houses, to transport his goods in wheeled vehicles, were first taken in the near East, by peoples who by no stretch of imagination could be called Nordic, but who seem in point of fact to have been largely of the dark, Mediterranean type. Secondly, it is true that great advances in civilization have sometimes been observed in history when invaders of a relatively light-skinned type have irrupted into countries populated by other groups—notably in Greece, though here round-headed as well as long-headed elements were included in the invaders (p 175). But in such cases, both types appear to have made their contribution, and the result can be ascribed to the vivifying effects of mixture and culture-contact with as much propriety as to the inherent qualities of one of the types concerned. Indeed, where the Nordic type is most prevalent, in northern Scandinavia, there is also found among the people a tendency to introspection, accompanied by a very high suicide-rate, this may well be an effect of the northern environment, but may equally well be a characteristic of the type or due to social conditions. Generally speaking, the greatest achievements of modern civilization have occurred in regions of the greatest mixtures of types—Italy, France, Britain, and Germany, to mention only four nations. In all these countries of "mixed races," owing to the nature of Mendelian inheritance, it is rare to find pure Nordic types. The great bulk of the population will contain genes derived from many original sources. In a

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nation like Britain or Germany, the pure Nordic type is irrecoverable for the country at large: the population as a whole is an inextricable mixture. The Nordic type may be held up as an ideal, but this ideal is genetically unattainable, and will not affect the biological realities of the situation.

Furthermore, when we look into the facts of history, we find it far from established that men of pure or even approximately Nordic type have been the great leaders of thought or action. The great explorers of Britain displayed initiative, but hardly one of them was physically of Nordic type. The majority of the most celebrated Germans, including Goethe, Beethoven, and Kant, were medium or round-headed, not long-headed like the typical Nordics. Napoleon, Shakespeare, Einstein—a dozen great names spring to mind which in themselves should be enough to disperse the Nordic myth. The word *myth* is used advisedly, since it frequently plays a semi-religious rôle, as basis for a creed of passionate racialism.

From what has been said, it will be clear that "race-mixture" has in the past been beneficial. The British contain strong Nordic and Eurasiatic elements, with a definite admixture of Mediterranean types. In the Germans there is a very large Eurasiatic element which includes the Slavonic, and genes from the Mongoloid peoples have crept in via Russia. In France, the population is largely Alpine, especially in the centre, but there is a strong Nordic admixture in the north and a slighter Mediterranean one in the south. The Jews are of mixed origin, and have steadily been growing more mixed. America is proverbially a melting-pot. The Japanese are also a mixture of several ethnic types.

In human affairs it is usually impossible to say which of a number of possible causes is decisive. A nation with a mixed population achieves great things. Is its

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greatness due to the genetic mixture in its people, or to the culture-contacts that have been brought about? Or is it due to neither of these things, but to favourable economic circumstances? It is never possible to be sure: it may be due to all three simultaneously. At any rate, we can assert without contradiction that genetic mixture of human types is certainly not harmful, and that it is to be found in every people which has achieved great things in history.

But this does not imply that ethnic mixture must always be good. In the above examples, we are dealing with mixture between minor subdivisions of one "primary race" or sub-species. What of mixture between the major subdivisions of mankind—between black and white, for instance, or white and yellow? In this field the most violent feelings are aroused. We need only cite the strong feeling in the United States against white intermarriage with Negroes or Chinese, and in South Africa against Bantu admixture.

When we make a comparative survey, however, we find that this prejudice does not exist universally. In Europe, the feeling against intermarriage with black or brown is far less marked among the Latin-speaking nations than in Britain. For instance, Portugal contains a considerable proportion of Negro genes, derived from intermixture with slaves since the sixteenth century. In the South American countries there is little or no social discrimination against the offspring of mixed marriages, and Indian, Negro, and white stocks are inextricably blended. The population of Mexico is predominantly one of hybrids between white and Indian. In the British West Indies there is a large and respected class of half-castes arising from Negro-white admixture. In Soviet Russia there is deliberate discouragement of all race prejudice.

We need not multiply examples. What seems evident

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is that in this field, too, it is not biological but cultural factors which are dominant. Where, for instance, a slave-class exists of markedly different ethnic type from their masters, it is clear that marriage with one of the slave type will be frowned upon. This will not, however, prevent the occurrence of sexual relations between the two groups, though these will be almost entirely between the men of the ruling class and the women of the slave class or type. The most obvious example is that of the relations of planters and slaves in the Old South before the Civil War. Far from there always existing a sexual repulsion between markedly different types, there is often a strong sexual attraction. The disapproval of "miscegenation" is primarily social, not biological

This does not, of course, mean that biological factors do not exist. They do exist in regard to the emotional attractiveness or the reverse of different ethnic types for each other. However, when we are dealing with the major divisions of mankind, such emotional barriers are certainly not of a primary nature. In suitable social environments, blacks, whites, and yellows may exert a powerful sexual attraction on each other.

There is also the question of the biological results of wide crosses. Here it is extremely difficult to come to any firm conclusion. Sweeping assertions are often made to the effect that half-castes are always unreliable, that they share the defects of both parent stocks, and so on and so forth. Such statements usually have no biological foundation. In so far as they are based on facts at all, the facts are social. In many countries where diversity of ethnic type exists, half-castes are at a grave social and often at an economic disadvantage. This is usually so when the dominant or ruling caste is of different ethnic type from the bulk of the population, as between white and Negro in the United States, or between white and brown

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in India. The half-caste is looked down upon by the dominant class, while he is often regarded as alien by the native or dominated class. Small wonder that he develops an unsatisfactory mentality.

Dismissing such cases, we are, however, confronted with the possibility that very wide crosses may give biologically "disharmonic" results in later generations, by producing ill-assorted combinations of characters. Characters may be unduly exaggerated by the coming together of unfamiliar genes, or characters adapted to one environment may be forced to co-exist with those adapted to another.

If the primary sub-species of man were really developed in comparative isolation, each adapted to a different main type of environment, it may be argued that to upset the adjustment brought about by thousands of years of selection is bound to produce some disharmony. Further, if it be true that some ethnic groups possess a low average level of innate intelligence, to allow crosses between them and more intelligent types is a retrograde step.

These objections undoubtedly have some validity. There are, however, arguments on the other side. Even if wide crosses should produce some disharmonic or mal-adjusted types, this will occur as the result of the great variability induced by such crosses; and this same variability may be expected to throw up also some exceptionally well-endowed types. Again, that types were well adapted in the past does not imply that new types may not be better adapted to the wholly new environments which man is ever busily creating for himself, and it may well be that new combinations of characters will be needed to cope with the problems of the future.

Crosses between groups or classes of markedly different ethnic types within the same country, when they differ also in standard of living, social status, or general outlook, will have the effect of blurring the social barriers and

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economic distinctions between them. In certain cases, the ruling caste or class may find itself or its ideas swamped or diluted to vanishing point; in other cases it feels impelled to guard its privileges. From a purely biological standpoint it might conceivably be a good thing to undertake mass-crossing between say the British and the Bantu, or the Americans and the Chinese, on account of the new genetic recombinations to be obtained. But the social systems involved would be unable to stand the strain. There is a limit to the amount of foreign stock which can be taken up by a nation in a given time. This is not due to the quantity of foreign genes *per se*, but to the mass of alien habits, prejudices, ideas, and resistances which have to be overcome and assimilated.

Once again the term "race" proves to be misleading. The question of "race-mixture" turns out not to be primarily a matter of "race" at all, but a matter of nationality, class, or social status. "Racial crossing" may be inadvisable, but chiefly because the ethnic groups involved happen to be in different national worlds or on different cultural levels. Policy in this matter can only be determined on its economic and social merits: the biologist and the eugenicist have here a negligible or at best a minor rôle to play as advisers. When politicians and propagandists seek to make out a purely biological case against intermarriage with such and such a people or ethnic type, we can always be sure that this is a rationalization, and the real antagonism is to be sought in some other sphere. The biological reasoning is a cloak to fling over obscure, perhaps unconscious feelings. The ethnic group thus discriminated against serves as the scapegoat for some economic fear, some class prejudice, some nationalist ambition, some cultural pride, even some "inferiority complex." Similar types of rationalization, with the same lack of biological validity, have been em-

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ployed to justify slavery, the caste system, class oppression, religious persecution. The argument against so-called miscegenation is only one among many thrown up by groups in power to justify themselves in their own eyes or in the eyes of others

So far we have been considering only wide crosses, between markedly distinct ethnic types. Still more do our conclusions apply to crosses between minor varieties of the same primary sub-species, such as Nordic and Alpine, or ethnic groups differing primarily in quantitative ways, such as French and German, or sections of the population distinguished mainly on a cultural basis, such as Jew and Gentile, Catholic and Protestant. In such cases, when biological arguments are advanced to the detriment of one of the ethnic groups concerned, whether against intermarriage or civil equality, religious or economic freedom, we can be certain that these conceal another and more deep-seated reason, and that this is either fear of economic competition, or the psychological need of discovery of a scapegoat—or sometimes both in combination. We see this in the United States immigration laws aimed at the populations of south and south-eastern Europe, and in the anti-Jewish legislation and propaganda in Nazi Germany

In Germany to-day in order to establish "Aryan blood" a man must present a pedigree clear of "non-Aryan"—i.e. Jewish—elements for several generations back. The enormous number of cases in which one parent or grandparent or great-grandparent of the most thoroughly "German" citizens has proved to be Jewish shows how impossible it is to secure a "pure Nordic stock." Once more, indeed, the social and cultural plane is the more important. Germany has benefited a great deal from her Jewish elements—we need only think of Heine, Haber, Mendelssohn, Einstein. But during the economic depres-

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sion the competition of Jews in the professions, in finance, and in retail trade was proving embarrassing, and in the revolution it was convenient to treat the Jews as a collective scapegoat, who could be blamed for mistakes, and on whom might be vented the anger that must be restrained against external enemies

It is instructive to compare the treatment of the Jews in Germany with that of the Kulaks in Russia. The Kulaks, by standing in the way of rural collectivization, were an obstacle to the Government's economic plans; they also provided a convenient scapegoat for any mistakes and failures that might occur. Their persecution was as horrifying as that of the Jews. But at least, it was not justified on false grounds of mysticism or pseudo-science. Their existence obstructed something which was of the essence of communist planning, and they had to submit or be killed or expelled. The Jews could not even submit; because a false ideal of race had been erected to cloak the economic and psychological motives of the regime; they could only suffer at home while some few have succeeded in going into exile abroad.

Similarly in America. The real danger was that the American tradition might not suffice to absorb the vast body of alien ideas pouring into the country with the host of new immigrants, that the national melting-pot might fail to perform its office, and might crack or explode. When immigrants came in small numbers they could be and were absorbed, from whatever part of Europe they chanced to hail, and in one or at most two generations had become an integral part of the American nation. Their Alpine or Mediterranean genes stood in the way of the process no more than their previous Czech or Italian nationality. It was the size of the blocks of alien culture presented by twentieth-century immigration which constituted the problem.

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It may well be that in many cases the discouragement of "racial crossing" may be the correct policy. But this will be primarily because such crossing will be a symptom of culture-contact on a large scale, and that this culture-contact is in danger of bringing about economic or cultural changes which are undesirable, either in themselves or as a matter of immediate policy. In such cases it is desirable so far as is possible to hinder intermarriage and extra-marital intercourse, which might be done by preventing culture-contact on a large scale.

So long as nationalist ideas, even in modified form, continue to dominate the world scene, the large-scale segregation of areas, each developing their own general type of culture, may be the policy to pursue. If unrestricted immigration seems likely to upset such a policy, restriction is justifiable, as with Asiatic races in Australia and the United States. But do not let us in such cases make it a question of "race," or become mystical on the subject, or justify ourselves on false biological grounds.

Such considerations, however, apply only to major differences of type and culture. Within a single main ethnic group or cultural area they are irrelevant. Notably in Europe, both ethnic intercrossing and culture-contacts have proceeded so far that "racial purity," like complete isolationism or self-sufficiency, is impossible of attainment. And because they are impossible to attain, they are dangerous to aim at. as an ideal, they contain unrealities and impossibilities which may destroy essential realities and thwart true possibilities

The violent racialism to be found in Europe to-day is a symptom of Europe's exaggerated nationalism: it is an attempt to justify nationalism on a non-nationalist basis, to find a firm basis in objective science for ideas and policies which are generated internally by a particular economic and political system, and have real relevance

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only in reference to that system. The cure for the racial mythology, with its accompanying self-exaltation and persecution of others, which now besets Europe, is a re-orientation of the nationalist ideal, and, in the practical sphere, an abandonment of claims by nations to absolute sovereign rights. Meanwhile, however, science and the scientific spirit can do something by pointing out the biological realities of the ethnic situation, and by refusing to lend her sanction to the absurdities and the horrors perpetrated in her name. Racism is a myth, and a dangerous myth at that. It is a cloak for selfish economic aims which in their uncloaked nakedness would look ugly enough. And it is not scientifically-grounded. The essence of science is the appeal to fact.

APPENDIX

The following three tables contain figures referred to in Chapter V. The Figures in Table A are derived from the following sources:

AUSTRIA *Statistisches Handbuch für die Republik Oesterreichs*, XIII Jahrgang, Vienna, 1932, p. 16, *Annuaire Internationale de Statistique*, The Hague, 1916, II, p. 42, *Statistique Internationale du Mouvement de la Population*, Paris, 1907, p. 181

BELGIUM *Aperçu de la démographie des divers pays du monde*, The Hague, 1925, pp. 274-5, 1932, pp. 138-9; *Statistique Internationale du Mouvement de la Population*, Paris, 1907, p. 182, *Annuaire Internationale de Statistique*, The Hague, 1916, II, pp. 42-3

CZECHOSLOVAKIA *Manuel Statistique de la République Tschécoslovaque IV*, 1932, p. 26

DENMARK *Statistique Internationale du Mouvement de la Population*, Paris, 1907, p. 181, *Annuaire Internationale de Statistique*, The Hague, 1916, II, p. 44, *Aperçu de la démographie des divers pays du monde*, The Hague, 1932, p. 138, 1925, p. 274

ENGLAND AND WALES *Statistical Review of England and Wales for the year 1930*, Part II, Civil, p. 5.

FRANCE *Statistique Internationale du Mouvement de la Population*, Paris, 1907, p. 183; *Annuaire Internationale de Statistique*, The Hague, 1916, II, p. 46, *Aperçu de la démographie des divers pays du monde*, The Hague, 1925, p. 276, 1932, p. 140.

GERMANY. *Statistisches Jahrbuch für das deutsche Reich*, 1932, p. 24

HOLLAND *Statistique Internationale du Mouvement de la Population*, Paris, 1907, p. 183, *Annuaire Internationale de Statistique*, The Hague, 1916, II, pp. 50-1; *Aperçu de la démographie des divers pays du monde*, The Hague, 1925, p. 280-1; 1932, pp. 144-5

HUNGARY. *Statistique Internationale du Mouvement de la Population*, Paris, 1907, p. 182; *Annuaire Internationale de Statistique*, The Hague, 1916, II, p. 48-9, *Aperçu de la démographie des divers pays du monde*, The Hague, 1932, pp. 140-1; 1925, pp. 278-9

ITALY. *Annuaire Internationale de Statistique*, 1916-17, Part II. *Mouvement de population, D Naissances*, Table II. *Aperçu*

TABLE A

ILLEGITIMATE BIRTHS PER 1000 TOTAL BIRTHS IN ELEVEN EUROPEAN COUNTRIES

<i>Austria</i>		<i>Belgium</i>		<i>Czechoslovakia</i>		<i>Denmark</i>		<i>England and Wales</i>	
<i>Year</i>	<i>Per 1000</i>	<i>Year</i>	<i>Per 1000</i>	<i>Year</i>	<i>Per 1000</i>	<i>Year</i>	<i>Per 1000</i>	<i>Year</i>	<i>Per 1000</i>
1851-60	145	1856-60	78			1851-55	110	1851-60	65
1861-70	146	1861-65	73			1856-60	109	1861-70	61
1871-75	124	1866-70	72			1861-65	110		
1876-85	144	1871-75	71			1866-70	114	1871-80	50
		1876-80	75			1871-75	112		
		1881-85	83			1876-80	102		
1886-95	148	1886-90	89			1881-85	101	1881-90	47
		1891-95	90			1886-90	96	1891	42
1896-05	136	1896-00	81			1891-95	95	1895	42
		1901-05	69			1896-00	97	1900	40
1910	122	1910	63			1901-05	102	1905	40
1915 ¹	236	1915	—	1919	95	1910	111	1910	41
1920	233	1920 ²	72	1920	109	1915	117	1915	44
1926	241	1925	51	1925	105	1920	118	1920	47
1930	272	1929	43	1930	108	1925	105	1925	41
						1929	108	1930	46

France		Germany		Holland		Hungary		Italy		Switzerland	
Year	Per 1000	Year	Per 1000	Year	Per 1000	Year	Per 1000	Year	Per 1000	Year	Per 1000
1851-55	75	1851-60	115								
1856-60	—	1861-70	115	1861-65	41						
1861-65	78			1866-70	37						
1866-70	—	1871-75	91	1871-75	35						
1871-75	75	1876-80	88	1876-80	32						
1876-85	78	1885	95	1881-86	31	1876-80	74	1876-85	75	1871-75	50
		1890	91	1886-90	33	1881-85	80			1876-80	48
1886-95	88	1895	91	1891-95	32	1886-90	83	1886-95	72	1881-85	50
		1900	87	1896-00	28	1891-95	86	1896-05	60	1886-90	48
1896-05	90	1905	85	1901-05	24	1896-00	90			1891-95	47
1906	90	1910	91	1910	21	1901-05	94	1910	50	1896-00	46
1910	89	1915	112	1915	23	1910	93	1915	45	1906	44
1915	114	1920 ⁴	114	1920	22	1915	96	1920	48	1910	46
1920	101	1925	120	1925	18	1920	81	1925	50	1915	47
1925	87	1930	121	1929	18	1925	82	1930	50	1920	45
1928	85					1929	88			1925	37
										1930	44

¹ After 1915 refers only to German-speaking territory as delimited by Treaty of Versailles.

² Figures for period 1914-18 unobtainable owing to German occupation.

³ Figures for 1915 for 77 departments only, corresponding to 33,080,000 inhabitants in 1911. Aisne, Ardennes, Marne, Meurthes-et-Moselle, Meuse, Nord, Oise, Pas-de-Calais, Somme, Vosges not included owing to German occupation, evacuation or disturbance by war operations.

⁴ This and following figures without Alsatia and all provinces now with Poland, Czechoslovakia, Denmark, Belgium, Danzig, and Memel.

WE EUROPEANS

de la démographie des divers pays du monde, The Hague, 1925, Part II; *Mouvement de population, C Naissances*, Table II, 1931, Part II, Table II

SWITZERLAND *Statistique Internationale du Mouvement de la Population*, Paris, 1907, p 182, *Annuaire Internationale de Statistique*, The Hague, 1916, II, pp 52-3, *Aperçu de la démographie des divers pays du monde*, The Hague, 1925, pp 282-3, 1932, pp. 146-7

TABLE B

SUICIDES DEATHS PER 100,000 PERSONS AT ALL AGES

Sources statistical abstracts of the various countries, *To be or not to be. A Study of Suicide*, Louis I Dublin, Ph D, and Bessie Bunzel, M A, and *Suicide and its relation to Climatic and other Factors*, John Rice Miner, Ph D "American Journal Hygiene," Monographic Series, No 2, 1922

Year	England and Wales	Scotland	France	Germany
1910	10 0	6 1	21 8	21 6
1911	9 9	5 3	22 1	21 7
1912	9 9	5 9	22 9	22 5
1913	9 6	5 9	23 0	23 2
1914	10 0	5 5	21 8	21 2
1915	7 8	5 0		
1916	7 3	4 6	15 5	17 5
1917	6 4	4 3		
1918	7 5	3 9	15 8	15 3
1919	9 1	4 8		
1920	9 0	4 9	18 9	21 3
1921	9 9	5 6	19 6	21 0
1922	10 2	5 6		21 5
1923	10 3	6 7		21 6
1924	9 6	7 4		22 8
1925	10 5	7 6	19 3	24 2
1926	11 4	8 7	19 2	25 9
1927	12 5	10 3	19 3	25 0
1928	12 4	9 8	18 9	24 9
1929	12 6	9 8		25 7
1930	12 7	10 2		27 8

APPENDIX

TABLE C
HOMICIDES DEATHS PER 100,000 PERSONS
AT ALL AGES

Source statistical abstracts of the countries concerned. (See page 237).

<i>Year</i>	<i>England and Wales</i>	<i>Scotland</i>	<i>France</i>	<i>Germany</i>
1921	7	4		2 71
1922	5	4		2 50
1923	6	4	Homicide	2 60
1924	6	5	not divided	2 22
1925	7	4	from other	2 29
1926	7	4	violent	2 17
1927	5	4	deaths before	2 06
1928	5	7	1930	1 99
1929	5	4		1 84
1930	5	5	8	1 91
1931	5	5	1 0	2 07
1932	5	5		

.Key to Portraits of Different Nationalities on pages 11-14.

- | | |
|--------------|-------------|
| 1 Australian | 9. Finnish |
| 2 Danish | 10 Belgian |
| 3 British | 11. Polish |
| 4 German | 12 American |
| 5 German | 13 Spanish |
| 6 Norwegian | 14 Russian |
| 7 Dutch | 15 Italian |
| 8 French | 16 Austrian |

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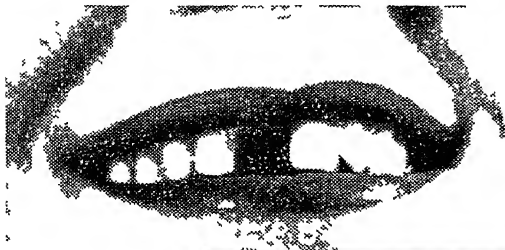
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